

# **ATTACHMENT B**

**REVISED APPENDIX A**  
**REGULATIONS GOVERNING RAILROAD**  
**OPERATIONS AT DEFINED SITES**

**Regulations**

Each railroad corporation that serves, leases, owns or operates over the following 19 track segments identified as local safety hazard sites shall observe all rules ordered in this Decision. Disciplinary action or other adverse administrative or employment action may not be instituted against a person who reports a violation of the ordered regulations.

	<u>Site No.</u>	<u>Line Description</u>	<u>Railroad Milepost</u>	<u>ID Method</u> <sup>1</sup>
Southern Pacific Transportation Company (SP)				
1.	1	Coast Line	MP 235.0 - 249.0	Statistical
2.	3	Yuma Dist.	MP 535.0 - 545.0	Statistical
3.	4	Yuma Dist.	MP 586.0 - 592.0	Statistical
4.	6	Yuma Dist.	MP 542.6 - 589.0	Operational
5.	7	Siskiyou Line	MP 393.1 - 403.2	Operational
6.	9	Shasta		
		(Black Butte Dist.)	MP 322.1 - 332.6	Statistical
7.	10	Shasta Line	MP 322.1 - 338.5	Operational
8.	12	Roseville		
		(Dist. #1 & #2)	MP 150.0 - 160.0	Statistical
9.	16	Bakersfield Line	MP 335.0 - 359.9	Statistical
10.	19	Bakersfield Line	MP 463.0 - 486.0	Operational
Union Pacific Railroad Company (UP)				
11.	22	Feather River Div.	MP 234.0 - 240.0	Statistical
12.	23	Feather River Div.	MP 253.0 - 282.0	Statistical

<sup>1</sup> A "Statistical" hazard site identification denotes that the site possesses a statistically significant high derailment frequency based on analysis of derailment history at the site. An "Operational" hazard site identification denotes that the site is designated as grade restricted by the railroad and self-imposed operating restrictions govern movements at the site.

	<u>Site No.</u>	<u>Line Description</u>	<u>Railroad Milepost</u>	<u>ID Method</u>
13.	25	Feather River Div.	MP 232.1 - 319.2	Operational
14.	26	Bieber Line	MP 15.0 - 25.0	Statistical
15.	27	L.A. Sub. (Cima Grade)	MP 236.5 - 254.6	Operational
Atchison, Topeka and Santa Fe Railway Company (ATSF)				
16.	28	Cajon	MP 53.0 - 68.0	Statistical
17.	29	Cajon	MP 80.5 - 81.5	Statistical
18.	30	Cajon	MP 55.9 - 81.5	Operational
19.	31	San Diego Line	MP 249.0 - 253.0	Statistical
	32	Pasadena Subdivision	[DROPPED]	

## **~~1. Track-Train Dynamics Rules Change Regulation~~**

### **~~(A) Summary~~**

~~This regulation requires that any changes to the railroad's identified track-train dynamics rules shall be forwarded to the Rail Safety and Carriers Division for review and approval as required below.~~

### **~~——(B) Requirements~~**

~~(1) The railroad shall file written notice with the Rail Safety and Carriers Division 30 days prior to changing any track-train dynamics rules within each site, except as prescribed in 2.(B)(4) and (5) below. In addition to a description of the proposed rule changes, the notice must contain a factual justification for those changes, including the method and calculations used to arrive at the specifications in the new rules.~~

~~(2) If the Director of the Rail Safety and Carriers Division objects to any rule changes within the 30-day period, the railroad has 20 days to respond to the Director's objections. If after reviewing the railroad's response, the Director still objects to the proposed changes, the dispute will be put before the Commission for resolution within 30 days of the railroad's response.~~

~~(3) In an emergency the carrier may implement changes immediately, if each change is clearly more restrictive. A copy of the changes must be forwarded with the carrier's justification to the Rail Safety and Carriers Division within 15 days of implementation.~~

~~(4) Upon receipt of the copy of the emergency changes as allowed in 1.(B)(3), the Director of the Rail Safety and Carriers Division shall determine whether the changes are more restrictive and can remain in effect, or whether they are less restrictive and must follow the provisions of 1.(B)(1) and (2) above.~~

~~(5) The carrier shall maintain electronic media records of all trains travelling through each site. These records shall be comprised of train-consist information and at a minimum shall include the order of cars and engines, their identification numbers, tonnages, and an indication of whether each car is loaded or empty. These records must be made available in electronic media format (tape,~~

~~disk, or modem) to Rail Safety and Carriers Division staff upon request and must be maintained for at least 12 months.~~

- ~~(6) When a new timetable, rule book, or other form of instructions is issued by the carrier, and is forwarded to the Commission under the provisions of General Order 108, the carrier must indicate in writing the location in those documents of each of the railroad's identified track train dynamics rules.~~

## **2. Training Regulation**

### ~~—— (A) Training Requirements~~

~~This regulation requires the submission of documentation showing that employees who perform service at each site are able to apply site specific rules.~~

### ~~—— (B) Requirements~~

~~—— 1. No later than 90 days from the effective date of this decision, any railroad currently operating trains at each site, shall submit to staff documentation of its administrative processes for training specific to each site. At least 60 days before beginning operations at each site, any other railroad shall submit to Staff the same training process documentation.~~

~~—— 2. The site specific training:~~

- ~~a) —— May be integrated with the current training schedules.~~
- ~~b) —— Shall take no longer than the date of the next scheduled classes to ensure that all employees who perform service over the hazard site satisfy the performance objectives stated herein.~~
- ~~c) —— Shall be required for all new employees before performing service over the hazard site.~~
- ~~d) —— Shall have testing procedures to verify that all employees who operate over the hazard site are current with existing or updated rules and instructions.~~
- ~~e) —— Shall have testing procedures to verify that an employee who has not performed service over the site for six months can still satisfy the performance objectives.~~

~~3. The site specific training shall verify that employees are able to satisfy the following performance objectives:~~

~~a) Identify when a train is improperly made up according to the current train make up rules specific to the hazard site.~~

~~b) When given a list of cars to add to their train, determine the appropriate placement of these cars according to train make up rules specific to the hazard site.~~

~~c) When given a list of cars to set out from their train, determine if the train is properly made up according to train make up rules specific to the hazard site when reassembled.~~

~~d) Correctly apply the site specific operating instructions that govern train make up for trains operating through each site.~~

**(END OF ATTACHMENT B)**

# **ATTACHMENT C**

**REVISED APPENDIX B**

**Summary List of Regulations Adopted at Each Site**

- \* Statistically identified site; absence of \* indicates an operationally defined local safety hazard site.

**SOUTHERN PACIFIC TRANSPORTATION COMPANY (SP)**

- |    |    |                                 |            |                  |
|----|----|---------------------------------|------------|------------------|
| 1. | SP | Coast Line*                     | Site No. 1 | MP 235.0 - 249.0 |
|    |    | Track-Train Dynamics            |            |                  |
|    |    | <del>Training</del>             |            |                  |
| 2. | SP | Yuma Dist.*                     | Site No. 3 | MP 535.0 - 545.0 |
|    |    | Track-Train Dynamics            |            |                  |
|    |    | <del>Training</del>             |            |                  |
| 3. | SP | Yuma Dist.*                     | Site No. 4 | MP 586.0 - 592.0 |
|    |    | Track-Train Dynamics            |            |                  |
|    |    | <del>Training</del>             |            |                  |
| 4. | SP | Yuma Dist.                      | Site No. 6 | MP 542.6 - 589.0 |
|    |    | <del>End of Train Devices</del> |            |                  |
| 5. | SP | Siskiyou Line                   | Site No. 7 | MP 393.1 - 403.2 |
|    |    | Track-Train Dynamics            |            |                  |
|    |    | <del>Training</del>             |            |                  |
| 6. | SP | Shasta                          |            |                  |
|    |    | (Black Butte Dist.)*            | Site No. 9 | MP 322.1 - 332.6 |
|    |    | Track-Train Dynamics            |            |                  |

		<del>Training</del>		
-		<del>Track Standards</del>		
7.	SP	Shasta Line	Site No. 10	MP 322.1 - 338.5
		<del>Dynamic Braking</del>		
8.	SP	Roseville Dist. #1 & #2*	Site No. 12	MP 150.0 - 160.0
		Track-Train Dynamics		
		<del>Training</del>		
9.	SP	Bakersfield Line*	Site No. 16	MP 335.0 - 359.9
		Track-Train Dynamics		
		<del>Training</del>		
10.	SP	Bakersfield Line	Site No. 19	MP 463.0 - 486
		<del>Dynamic Braking</del>		

UNION PACIFIC RAILROAD COMPANY (UP)

11.	UP	Feather River Div.*	Site No. 22	MP 234.0 - 240.0
		Track-Train Dynamics		
		<del>Training</del>		
12.	UP	Feather River Div.*	Site No. 23	MP 253.0 - 282.0
		Track-Train Dynamics		
		<del>Training</del>		
13.	UP	Feather River Div.	Site No. 25	MP 232.1 - 319.2
		<del>End of Train Devices</del>		
		Defect Detectors		

~~————Dynamic Braking~~

14.	UP	Bieber Line*	Site No. 26	MP 15.0 - 25.0
		Track-Train Dynamics		
		Training		

15.	UP	L.A. Sub. Cima Grade	Site No. 27	MP 236.5 - 254.6
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~~————Dynamic Braking~~

ATCHISON TOPEKA AND SANTA FE RAILWAY (ATSF)

16.	ATSF	Cajon*	Site No. 28	MP 53.0 - 68.0
		Track-Train Dynamics		
		Training		

17.	ATSF	Cajon*	Site No. 29	MP 81.0 - 81.5
		Track-Train Dynamics		
		Training		

18.	ATSF	Cajon	Site No. 30	MP 55.9 - 81.5
		Defect Detectors		

~~————Dynamic Braking~~

19.	ATSF	San Diego Line*	Site No. 31	MP 249.0 - 253.0
		Track-Train Dynamics		
		Training		

**(END OF ATTACHMENT C)**

## **ATTACHMENT D**

COPY

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RICHARD J. WICKING  
CLERK, U.S. DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA

LATHAM & WATKINS  
Maureen M. Mahoney (Admitted *Pro Hac Vice*)  
555 Eleventh Street, N.W.  
Washington, D.C. 20004-1304  
Telephone: (202) 637-2200  
Facsimile: (202) 637-2201

Attorneys for Plaintiffs  
UNION PACIFIC RAILROAD COMPANY and  
THE BURLINGTON NORTHERN AND SANTA  
FE RAILWAY COMPANY

PEOPLE OF THE STATE OF CALIFORNIA and  
CALIFORNIA STATE PUBLIC UTILITIES  
COMMISSION

Patrick S. Berdge (State Bar No. 59138)  
505 Van Ness Avenue  
San Francisco, CA 94102

Telephone: (415) 703-1519  
Facsimile: (415) 703-4432

ALPER & MANN, P.C.  
Lawrence M. Mann (D.C. Bar No. 43703)  
1703 K. Street, N.W., Suite 1107  
Washington, D.C. 20006

Telephone: (202) 298-9191  
Facsimile: (202) 298-9194

Attorneys For Intervenors  
THE BROTHERHOOD OF LOCOMOTIVE  
ENGINEERS, and THE UNITED  
TRANSPORTATION UNION

RECEIVED  
LEGAL DIVISION  
MAY -3 2004

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO

UNION PACIFIC RAILROAD COMPANY,  
*et al.*,

Plaintiffs,

v.

CALIFORNIA PUBLIC UTILITIES  
COMMISSION, *et al.*,

Defendants.

CASE NO. C 97-03660 TEH

**[PROPOSED] STIPULATED FINAL  
JUDGMENT ON REMAND ISSUES**

1 WHEREAS, Plaintiffs Union Pacific Railroad Company, *et al.* commenced this action by  
2 filing its Complaint, as amended; and

3 WHEREAS, many of the issues presented by the action were finally resolved by  
4 operation of this Court's final judgment issued on August 17, 2000, as amended by the Order  
5 Granting Motion to Amend Judgment entered on December 21, 2000, and by the Ninth Circuit's  
6 decision in *Union Pacific Railroad Co. v. CPUC*, 346 F.3d 851 (9th Cir. 2003), *cert. denied*, \_\_\_\_  
7 U.S. \_\_\_\_, 124 S. Ct. 1040 (2004), affirming in part, reversing part, and remanding certain issues  
8 to this Court for further proceedings ("the remanded issues"); and

9  
10 WHEREAS, Plaintiffs and Defendant California Public Utilities Commission, *et al.*, have  
11 agreed to resolve all of the remanded issues through the Court's entry of this Stipulated Final  
12 Judgment as part of and as an express condition of the settlement agreement ("Settlement  
13 Agreement"), without further trial or adjudication of any issue of law or fact raised by the Ninth  
14 Circuit's remand order; and

15  
16 WHEREAS, the terms of that settlement are memorialized in the Settlement Agreement,  
17 attached hereto as Exhibit 1;

18 NOW, WHEREFORE, the undersigned parties having requested the Court to enter this  
19 Order, this Court hereby orders:

20 (1) The terms of the attached Settlement Agreement shall operate as a FINAL  
21 JUDGMENT on the remanded issues in the above captioned matter;

22 (2) The Court shall retain continuing jurisdiction to administer the terms of  
23 the judgment; and

24 (3) Each party shall bear its own costs.  
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SO ORDERED.

Dated: May \_\_\_\_, 2004

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Honorable Thelton E. Henderson  
United States District Court Judge,  
Northern District of California

# **EXHIBIT 1**

**[SETTLEMENT AGREEMENT]**

## SETTLEMENT AGREEMENT

The Parties agree, in light of the previous decisions in this matter, including *Union Pacific Railroad Co. v. CPUC*, 346 F.3d 851 (9th Cir. 2003), and *Union Pacific Railroad Co. v. CPUC*, 109 F. Supp. 2d 1186 (N.D. Cal. 2000), to request the Court to resolve the outstanding issues in this case through entry of a final consent judgment. The Parties will draft a consent judgment that would grant relief consistent with the Courts' decisions by specifically providing:

1. That the CPUC "may enforce the Railroads' remaining TTD rules in the absence of the coupler restrictions," at the identified locations, provided that "the Railroads' remaining TTD rules" shall be limited to the subset of rules identified herein, in Part IV.
2. The Rules identified in Part IV exclude (a) rules governing the use of dynamic brakes, based upon FRA's decision to inform CPUC that these rules are subject to federal enforcement; (b) rules governing RoadRailer equipment; (c) placement rules unrelated to TTD issues; and (d) rules regarding couplers.
3. The CPUC's TTD regulations are otherwise unenforceable, but the Railroads must provide notice of TTD rule changes in the manner specified in Part II below.

The Parties agree to, and the consent judgment shall reflect, the following terms, to be read in light of all final orders previously issued in this litigation:

## **I. DEFINITIONS**

- A. “Covered Rules” shall mean the rules identified in Appendix E of the CPUC’s decision, *Rulemaking on Comm’ns Own Motion to Provide for Mitigation of Local Rail Safety Hazards Within California*, 75 CPUC 2d 1, 120-43 (Sept. 3, 1997), as modified by Section IV below and as amended through changes implemented by the Railroad.
- B. “CPUC” shall mean the California Public Utilities Commission.
- C. The “Parties” shall mean the California Public Utilities Commission, Union Pacific Railroad Company, The Burlington Northern and Santa Fe Railway Company, The Brotherhood of Locomotive Engineers, and The United Transportation Union.
- D. “Railroads” shall mean Union Pacific Railroad Company and The Burlington Northern and Santa Fe Railway Company.
- E. “Regulation” or “the Regulation” shall mean the California Public Utilities Commission regulations found at *Rulemaking on Comm’ns Own Motion to Provide for Mitigation of Local Rail Safety Hazards Within California*, 75 CPUC 2d 1, 120-43 (Sept. 3, 1997), which encompass TTD rules adopted for Site 9 in the Dunsmuir proceedings.
- F. A “Rule Change” shall mean an alteration to the Railroads’ operating rules that changes at least one Covered Rule. For purposes of this Consent Judgment, a directive changing more than one operating rule shall be considered a single Rule Change provided that the directive is issued in its entirety on the same day.

## **II. NOTICE OF CHANGES**

- A. **Right to Change Operating Rules; Contemporaneous Notice to be Given**

CPUC agrees that the Railroads shall have the right to change any and all of the rules governed by the Regulation and that the Railroads are not obligated to secure and CPUC will not require state approval before or after any such changes. Changes must be made in accordance with this Section.

Subject to the exceptions detailed in Part II.B below, the Railroads agree to notify CPUC of any changes to the Covered Rules on or before the day in which such changes take effect. Such notice shall consist of the following:

1. Identification of the Covered Rule being changed;
2. Text of the revised rule;

3. An explanation of the processes or decisional criteria employed by the Railroad in order to assess the safety of the proposed rule, as well as the application of that criteria to the site, as illustrated by the following three examples:
  - a. If an external consultant was retained to evaluate the proposed rule change, a summary letter describing the consultant's analysis and conclusions, including any analysis of expected L/V ratios relied upon by the consultant;
  - b. If the Railroad internally prepared calculations, a summary letter describing those calculations and reporting the conclusions drawn, including any analysis of expected L/V ratios relied upon by the Railroad;
  - c. If the Railroad did not rely upon any calculations of the expected L/V ratios, an explanation of the basis for its conclusion that such calculations were unnecessary to assess the safety of the rule change, such as a statement explaining that the same rule has proven to be safe at another location with equivalent or more demanding grade and curve characteristics, and describing the calculations used for that other location.
4. The name and contact information of a person designated by the Railroad with technical expertise qualified to determine safe train operating procedures, who assessed the proposed rules and can respond to questions from CPUC; and

The Railroads agree, in good faith, that the person identified pursuant to Section II.A.4, shall be reasonably available should CPUC have inquiries about the rule change, and shall answer questions pertinent to the justification for or safety of the rule change. The Railroads further agree to discuss in good faith any concerns the CPUC may have regarding the safety of the change.

**B. Exceptions to Notice Requirements**

**1. Emergency Changes**

In the event of an emergency, the Railroads may make changes in the Covered Rules without complying with the notice provisions of Part II.A, provided that such change is based on a reasonable belief that each revised rule is more restrictive than the prior rule.

Under such circumstances, the Railroads shall provide notice to CPUC as soon as practicable, but in any event within fourteen (14) calendar days. Such notice need only conform to the requirements of Part II.A.1 and 2, and shall in addition include a statement of the

emergency circumstances justifying change without contemporaneous notice, and a description of how each revised rule is more restrictive than the prior rule.

## **2. Exigent Circumstances**

In the event that exigent circumstances require the Railroads to change any Covered Rule rapidly, the Railroads may make changes in the Covered Rules without contemporaneous notice as required by Part II.A, as long as such change is based on a reasonable belief that the revised rule is as safe or safer than the prior rule. For these purposes, “as safe or safer” shall be understood primarily to mean that the revised rule is not expected to yield a ratio of lateral to vertical forces that materially exceeds that permitted by the prior rule.

Under such circumstances, the Railroads shall provide notice to CPUC as soon as practicable, but in any event within fourteen (14) calendar days. Such notice shall conform to the requirements of Part II.A, and shall in addition include a statement of the exigent circumstances justifying change without contemporaneous notice, and a description of how each revised rule is as safe or safer than the prior rule.

Exigent circumstances, for purposes of this provision, shall constitute any circumstances in which the business of the Railroads calls for a change in operating rules, and that must be implemented immediately in order to permit the orderly and efficient conduct of the Railroads’ business.

## **C. Penalty**

In the event that the Railroads violate the notice provisions of this Consent Judgment, the Railroads shall be obligated to pay the CPUC the sum of \$2,000 per Rule Change implemented without proper notice as required in Part II.A-B, unless the violation was willful. In that case, the Railroads shall be obligated to pay the CPUC the sum of \$5,000 per Rule Change implemented without proper notice as required in Part II.A-B.

## **III. ENFORCEABILITY OF RAILROAD RULES**

The parties agree that CPUC may enforce the Covered Rules under the terms of this judgment. Nothing in this judgment, however, impairs the Railroads’ right to challenge particular enforcement actions or fines, either before the CPUC or before any court of competent jurisdiction, on any grounds not foreclosed by principles of issue or claim preclusion.

## **IV. IDENTIFICATION OF COVERED RULES**

The content of Appendix E has been resolved by joint agreement. The agreement reflects three goals:

1. Some of the rules found in the current Appendix E are substantially out of date. To enable both effective CPUC enforcement and effective Railroad compliance, the current versions of the Covered Rules have been designated.

2. The parties have excluded rules that can only be enforced under the federal program. These include:

- a. Coupler rules.
- b. Dynamic brake rules subject to FRA enforcement under the Power Brake Rule.\*
- c. Rules governing RoadRailers.

3. The parties have removed various rules unrelated to TTD issues.

## **V. MISCELLANEOUS TERMS**

### **A. Periodic Review**

The parties agree to confer no later than five (5) years from the effective date of this Consent Judgment, to determine in good faith whether the obligations imposed on the Railroads should cease in light of regulatory and industry changes. The parties agree to revisit the continued applicability of the Consent Judgment every five (5) years thereafter.

### **B. Change of Law**

The parties agree that this Consent Judgment and its terms are substantially premised upon the previous decisions in this matter, including without limitation the federal preemption rulings found in *Union Pacific Railroad Co. v. CPUC*, 346 F.3d 851 (9th Cir. 2003), and the unappealed portions of *Union Pacific Railroad Co. v. CPUC*, 109 F. Supp. 2d 1186 (N.D. Cal. 2000). In the event that a change in controlling law materially alters the preemptive force of federal law in this area, or reduces the CPUC's regulatory authority, the parties agree to negotiate in good faith the continued applicability of this Consent Judgment. If the parties agree that portions or all of the Consent Judgment should be lifted, the Court shall so order. If the parties are unable to reach agreement, each party reserves the right to unilaterally petition the Court for relief from this Consent Judgment.

### **C. Continuing Jurisdiction**

The Court shall retain continuing jurisdiction over this matter, to enforce the provisions of this judgment and to hear disputes over its application or interpretation.

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\* As discussed, the FRA has agreed to provide a letter to CPUC with respect to this issue.

Dated:

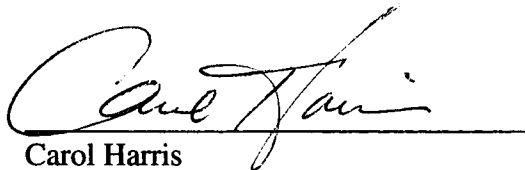
5/4/04



Patrick S. Berdge  
Public Utilities Commission of the  
State of California

Dated:

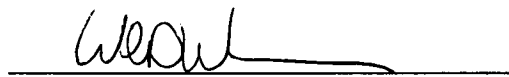
5/3/04



Carol Harris  
Union Pacific Railroad Company

Dated:

4/30/04



W. Douglas Werner  
The Burlington Northern and Santa Fe  
Railway Company

## PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



May 6, 2004

Maureen E. Mahoney  
LATHAM & WATKINS, LLP  
555 Eleventh Street, Suite 1000  
Washington D.C., 20004-1304

Re: Filed Settlement Agreement in *Union Pacific Railroad Co., et al. v. Calif. Pub. Util. Comm'n, et al.*, U.S. Dist. Ct. for the Northern Dist. of California, Case No. C 97-03660-TEH

Dear Ms. Mahoney:

Please find enclosed an endorse file stamped copy of the:

- 1) Joint Motion to Issue Consent Decree,
- 2) [Proposed] Stipulated Final Judgment on Remand Issues, and
- 3) Appendix E.

These were filed Tuesday, May 4, 2004, in the above-entitled proceeding. I have provided Larry Mann of the Brotherhood of Locomotive Engineers and the United Transportation Union, Carol Harris of the Union Pacific Railroad, and Doug Werner of the Burlington Northern and Santa Fe Railway, with identical copies.

If you have any questions, please feel free to contact me at (415) 703-1519.

Very Truly Yours,

  
Patrick S. Berdge  
Staff Counsel

PSB:afm

cc: Lawrence M. Mann, BLE & UTU  
Carol A. Harris, Union Pacific RR  
W. Douglas Werner, BNSF RY

COPY

1 LATHAM & WATKINS

Maureen M. Mahoney (Admitted *Pro Hac Vice*)

2 555 Eleventh Street, N.W.

Washington, D.C. 20004-1304

3 Telephone: (202) 637-2200

Facsimile: (202) 637-2201

4 Attorneys for Plaintiffs

5 UNION PACIFIC RAILROAD COMPANY and  
6 THE BURLINGTON NORTHERN AND SANTA  
FE RAILWAY COMPANY

7 STATE OF CALIFORNIA

Patrick S. Berdge (State Bar No. 59138)

8 505 Van Ness Avenue

San Francisco, CA 94102

9 Telephone: (415) 703-1519

10 Facsimile: (415) 703-4432

11 Attorneys For Defendants

12 PEOPLE OF THE STATE OF CALIFORNIA and  
13 CALIFORNIA STATE PUBLIC UTILITIES  
COMMISSION

14 ALPER & MANN, P.C.

Lawrence M. Mann (D.C. Bar No. 43703)

17 1703 K. Street, N.W., Suite 1107

18 Washington, D.C. 20006

19 Telephone: (202) 298-9191

Facsimile: (202) 298-9194

20 Attorneys For Intervenors

21 THE BROTHERHOOD OF LOCOMOTIVE  
22 ENGINEERS, and THE UNITED  
23 TRANSPORTATION UNION

24 UNITED STATES DISTRICT COURT

25 NORTHERN DISTRICT OF CALIFORNIA

26 SAN FRANCISCO

27 UNION PACIFIC RAILROAD COMPANY,  
28 *et al.*,

Plaintiffs,

v.

29 CALIFORNIA PUBLIC UTILITIES  
30 COMMISSION, *et al.*,

Defendants.

CASE NO. C 97-03660 TEH

**JOINT MOTION TO  
ISSUE CONSENT DECREE**

Honorable Thelton E. Henderson

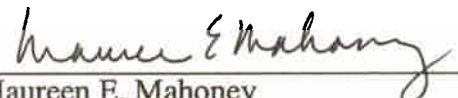
1 Plaintiffs, Union Pacific Railroad Company and The Burlington Northern and Santa Fe  
2 Railway Company, Defendants, the California State Public Utilities Commission, and  
3 Intervenor, the Brotherhood Of Locomotive Engineers, and the United Transportation Union  
4 request that this Court adopt the attached [PROPOSED] STIPULATED FINAL JUDGMENT  
5 ON REMAND ISSUES. In support, the parties declare as follows:

- 6 1. The parties have agreed to a settlement of all the issues remaining in this case;
- 7 2. Such settlement is memorialized in the Settlement Agreement attached as Exhibit 1 to  
8 the [PROPOSED] STIPULATED FINAL JUDGMENT ON REMAND ISSUES; and
- 9 3. Such settlement has been approved by a vote of the California State Public Utilities  
10 Commission.

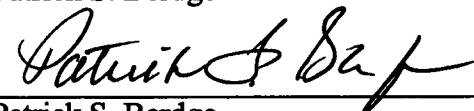
11 Dated: April 30, 2004

Respectfully submitted,

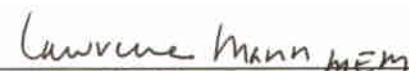
LATHAM & WATKINS LLP  
Maureen E. Mahoney

14 By   
15 Maureen E. Mahoney  
16 Attorney for Plaintiffs  
17 UNION PACIFIC RAILROAD  
18 COMPANY, and THE BURLINGTON  
19 NORTHERN AND SANTA FE RAILWAY  
20 COMPANY

18 PUBLIC UTILITIES COMMISSION OF THE  
19 STATE OF CALIFORNIA  
20 Patrick S. Berdge

20 By   
21 Patrick S. Berdge  
22 Attorney for Defendants THE PEOPLE OF  
23 THE STATE OF CALIFORNIA AND THE  
24 CALIFORNIA PUBLIC UTILITIES  
25 COMMISSION

24 ALPER & MANN, P.C.  
25 Lawrence M. Mann

26 By   
27 Lawrence M. Mann  
28 Attorney for Intervenor THE  
BROTHERHOOD OF LOCOMOTIVE  
ENGINEERS, and THE UNITED  
TRANSPORTATION UNION

**COPY**

**APPENDIX E**

**EXCERPTS FROM THE RAILROADS' OPERATING**

**RULES FOR THE AREAS CPUC**

**DESIGNATED AS**

**LOCAL SAFETY HAZARD SITES**

NOTED  
PUBLIC UTILITIES  
STATISTICAL DIVISION  
2001 MAY -3 PM 3:48  
DEVELOPMENT OFFICE

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## APPENDIX E

## EXCERPTS FROM THE RAILROADS' OPERATING RULES FOR THE AREAS

## CPUC DESIGNATED AS LOCAL SAFETY HAZARD SITES

Site 1: SP COAST LINE (MP 235.0 - 249.0)

## Union Pacific

## ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives			
Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives			
GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8	SD80MAC	13
3 TM c/o	6	1 Truck c/o	7
C44AC (CP)	12.1	SD9043	11.6
1 TM c/o	11	1 Truck c/o	7
2 TM c/o	8	(except models below)	
3 TM c/o	6		
C60/44 (7300-7335)	12.1	SD9043 (CP)	12
1 TM c/o	11	1 Truck c/o	9
2 TM c/o	8	SD90AC	14.5
3 TM c/o	6	1 Truck c/o	9
CFFAC-CTE		EMD AC locomotives have a single inverter per truck; therefore, an entire truck may be cut out.	
C44AC-CTE			
When in a lead consist or in a remote consist operating in the Full Tractive Effort (FTE) mode	12.1		
When in a remote consist operating in the Controlled Tractive Effort (CTE) mode	11		
1 TM c/o	11		
2 TM c/o	8		
3 TM c/o	6		
C60AC	14.7		
1 TM c/o	14		
2 TM c/o	11		
3 TM c/o	8		
GE AC locomotives have one inverter per axle; therefore an individual traction motor may be cut out. The maximum number of axles that may be cut out on a GE AC locomotive is three (3).			
* * *			

If unable to determine the model of a locomotive or its EPA and EDBA, the following TCS inquiry will provide the information:

=UM I unit Number

#### Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

#### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

#### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ⌘ Rear End Only⌘ or ⌘ Rear Rider⌘ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ⌘ Rear Rider⌘ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

#### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

#### ITEM 10. (CONTINUED)

#### 31.8.2 Helper Placement

The term ⌘ Helper⌘ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ~~⌘~~ Empty Bulk Commodity Unit Train~~⌘~~ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ~~⌘~~ Restricted Tonnage Limit~~⌘~~ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

#### A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

##### Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

##### Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

##### Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated <del>⌘</del> Rear End Only<del>⌘</del> or <del>⌘</del> Rear Rider<del>⌘</del>;</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected. On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.</li> </ol>
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250

restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~other than a loaded or empty bulk commodity unit train~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the

calculated position to comply with these train makeup restrictions.

1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by  $\frac{1}{2}$  the EPA of the helper. This number is the tonnage to be placed behind the helper.

$$\frac{(\text{Tonnage of Trains})}{(\text{Total EPA of all consists})} \times (\frac{1}{2} \text{ EPA of Helper}) = (\text{Tonnage to be placed behind helper})$$

Example:                115-0-16445 tons  
 Lead Consist:        2 C44AC (24 EPA)  
 Helper Consist:      2 C44AC (24 EPA)  
                          Total: 48 EPA

$$\frac{16445 \text{ tons}}{48} \times (12) = 4111 \text{ (Tonnage to be placed behind helper)}$$

2. Position Requirements for Cut-in Helper with Additional Helper on Rear

To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and  $\frac{1}{2}$  the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

$$\frac{(\text{Tonnage of Trains})}{(\text{Total EPA of all consists})} \times (\text{EPA of R e a r Helper} + \frac{1}{2} \text{ EPA of Cut-in Helper}) = (\text{Tonnage to be placed behind helper})$$

Example:                115-0-16445 tons  
 Lead Consist:        2 C44AC (24 EPA)  
 Middle Helper:       3 C44AC (24 EPA)  
 Helper Consist:      1 C44AC (12 EPA)  
                          Total: 72 EPA

$$\frac{16445 \text{ tons}}{72} \times (12+18) = 6852 \text{ (Tonnage to be placed behind helper)}$$

Site 1: SP Coast Line (MP235.5 - 249.0)

The following applies when operating northward or southward on ascending grades between Santa Margarita and San Luis Obispo:

Lead consist of a loaded bulk-commodity unit train must not exceed 38 EPA; lead consist of other than a loaded bulk-commodity unit train must not exceed 34 EPA. These restrictions include helper engines added to headend of train.

Train Make-up Restrictions Applicable Between Santa Margarita and San Luis Obispo.  
 Note: asterisk (\*) character can be a letter or a number.

On ascending grades between designated limits, the amount of trailing tonnage

behind a RESTRICTED car must not exceed the tonnage listed in the Maximum Trailing Tonnage table. When train includes any helper engine positioned within the trailing tonnage behind a restricted car, subtract the tonnage handled by the helper using the following calculation:

Northward between San Luis Obispo and Santa Margarita:

Multiply the EPA (Equivalent Powered Axles) of the helper by the factor 164. Subtract this tonnage from the total trailing tonnage behind a restricted car. This final figure is the actual trailing tonnage which must comply with the Maximum Trailing Tonnage table.

Southward between Santa Margarita and San Luis Obispo:

Multiply the EPA (Equivalent Powered Axles) of the helper by the factor 205. Subtract this tonnage from the total trailing tonnage behind a restricted car. This final figure is the actual trailing tonnage which must comply with the Maximum Trailing Tonnage table.

Maximum Trailing Tonnage				
Type of Car	1,000 Tons	2,500 Tons	3,000 Tons	4,100 Tons
Two-axle Front Runner Car (P12)	Weighs less than 25 tons	Weighs 25 tons or more		
Solid drawbar-connected two-axle car (P4)	Under all conditions			
Articulated doublestack car (P4*, P5*)			One or more empty platforms	
Multi-platform articulated Spine Car (P3*, P5*)			One or more empty platforms	
Car 73 feet in length or longer weighing less than 50 tons			Coupled to a car less than 73 feet in length	Coupled to another car 73 feet in length or longer

B. When train tonnage exceeds 3,600 tons, each of the first five cars behind the lead consist must weigh at least 50 tons. This restriction will not apply if train does not contain five cars that weigh 50 tons or more.

C. When train tonnage exceeds 4,100 tons, the first five cars behind the lead consist must each weigh at least 50 tons; AND

1. Be 73 feet in length or longer; OR
2. Be less than 73 feet in length.

In determining train make-up restrictions in A, B and C above, be governed by the following when dealing with the following non-conventional cars:

Articulated doublestack car or spine car (P3\*, P4\*, P5\*) having all platform/wells loaded is to be considered the equivalent of 2½ cars, each weighing 50 tons and each less than 73 feet in length.

Two-unit solid drawbar-connected long car (P2):

1. If the total weight of the car is 120 tons or more, it is to be considered the equivalent of two cars, each weighing 50 tons and each over 73 feet in length.
2. If the total weight of the car is less than 120 tons, it is to be

considered the equivalent of two cars, each weighing less than 50 tons and each over 73 feet in length.

Three-unit solid drawbar-connected doublestack car (P3\*):

1. If the total weight of the car is 150 tons or more and all platform/wells are loaded, it is to be considered the equivalent of three cars, each weighing 50 tons and each less than 73 feet in length.

2. If the total weight of the car is less than 150 tons, it is to be considered the equivalent of three cars, each weighing less than 50 tons and each less than 73 feet in length.

When helper exceeds 7 EPA, the cars that make up the tonnage ahead of the helper as indicated in the following table must comply with the train make-up restrictions in Rule 31.8.2 Helper Placement.

RESTRICTED TONNAGE TABLE				
SLO-Santa Margarita			Santa Margarita-SLO	
Helper EPA	Rear Helper	Cut-in Helper	Rear Helper	Cut-in Helper
8 to 16	500	250	500	250
17	800	400	500	250
18	1000	500	500	250
19	1250	625	500	250
20	1450	725	500	250
21	1700	850	500	250
22	1950	975	650	325
23	2150	1075	900	450
24	--	1000	--	250
25	--	1100	--	250
26	--	1200	--	350
27	--	1350	--	450
28	--	1450	--	600
29	--	1570	--	700
30	--	1700	--	800
31	--	1800	--	900
32	--	1900	--	1050
33	--	2050	--	1150
34	--	2200	--	1300
35	--	2300	--	1400
36	--	2400	--	1500

Rule 31.8.2. REVISE following portion of Rule 31.8.2 System Helper Placement Table to read:

**A. Rear or Cut-in Requirement for Helper:**

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

If rear helper or cut-in helper exceeds EPA requirements in below tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

**LOADED BULK-COMMODITY UNIT TRAIN**

Helper EPA	Placement Requirement
32 or less:	May be placed on rear or cut in as outlined in Part B. When placed on rear, it must be placed ahead of any caboose.
33 to 55:	May be placed on rear or cut in as outlined in Part B.

EMPTY BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
16 or less:	May be placed on rear or cut in as outlined in Part B. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut in as outlined in Part B.

OTHER THAN A LOADED BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
Any helper:	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale testcars;</li> <li>3. Cars designated ☒ Rear End Only☒ or ☒ Rear Rider☒ ;</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-60199;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.</li> </ol>
7 or less:	Placed on rear.
8 to 16:	Placed on rear. The following make up restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer weighing less than 60 tons.</li> </ol> <p>When train makeup within the restricted tonnage limit immediately ahead of the helper does not meet the above requirements, helper may be cut into train at a location that does permit complying with makeup restrictions. When cut into train under this condition Part B will not apply.</p>
17 to 23:	Placed on rear. The following make up restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer, unless the car is less than 82 feet in length and weighs 60 tons or more;</li> <li>3. Car weighing less than 45 tons.</li> </ol>

		When train makeup within the restricted tonnage limit immediately ahead of the helper does not meet the above requirements, helper may be cut into train at a location that does permit complying with makeup restrictions. When cut into train under this condition Part B will not apply.
24 to 36		<p>Must be cut in as outlined in Part B. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be:</p> <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer;</li> <li>3. Car weighing less than 45 tons.</li> </ol>

## Site 3: SP YUMA DISTRICT (MP 535.0 -- 545.0)

## Union Pacific

## ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives			
Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives			
GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8		
3 TM c/o	6		

		SD80MAC 1 Truck c/o	13 7
C44AC (CP) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 1 Truck c/o (except models below)	11.6 7
C60/44 (7300-7335) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 (CP) 1 Truck c/o SD90AC 1 Truck c/o	12 9 14.5 9
CFFAC-CTE	12.1  		

If unable to determine the model of a locomotive or its EPA and EDPA, the following TCS inquiry will provide the information:

=UM I unit Number

#### Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train

immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 ✕ 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

##### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ⌘ Rear End Only⌘ or ⌘ Rear Rider⌘ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ⌘ Rear Rider⌘ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

## ITEM 10. (CONTINUED)

### 31.8.2 Helper Placement

The term ⌘ Helper⌘ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ⌘ Empty Bulk Commodity Unit Train⌘ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ⌘ Restricted Tonnage Limit⌘ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

## A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

## Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

## Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

## Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated ⌘ Rear End Only⌘ or ⌘ Rear Rider;⌘</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected.</li> </ol> On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.</li> </ol>

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~the~~ other than a loaded or empty bulk commodity unit train~~the~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the calculated position to comply with these train makeup restrictions.

#### 1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by  $\frac{1}{2}$  the EPA of the helper. This number is the tonnage to be placed behind the helper.

$$\frac{\text{(Tonnage of Trains)}}{\text{(EPA of Helper)}} \times \left(\frac{1}{2} \text{ EPA of Helper}\right) = \text{(Tonnage to be placed behind helper)}$$

(Total EPA of all consists)

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
Helper Consist: 2 C44AC (24 EPA)  
 Total:48 EPA

$\frac{16445 \text{ tons}}{48} \times (12) = 4111$  (Tonnage to be placed behind helper)

2. Position Requirements for Cut-in Helper with Additional Helper on Rear  
 To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and  $\frac{1}{2}$  the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

$$\frac{\text{(Tonnage of Trains)}}{\text{(Total EPA of all consists)}} \times (\text{EPA of R e a r Helper} + \frac{1}{2}\text{EPA of Cut-in Helper}) = \text{(Tonnage to be placed behind helper)}$$

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Middle Helper: 3 C44AC (24 EPA)  
Helper Consist: 1 C44AC (12 EPA)  
 Total:72 EPA

$\frac{16445 \text{ tons}}{72} \times (12+18) = 6852$  (Tonnage to be placed behind helper)

Site 3: SP Yuma District (MP 535.0-545.0)

Helper consist must not be placed in multiple with:  
 A road consist between Loma Linda (MP 541.3) and Garnet (MP 589.0)

## Site 4: SP YUMA DISTRICT (MP 586.0 -- 592.0)

## Union Pacific

## ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives			
Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives			
GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8		
3 TM c/o	6		

		SD80MAC 1 Truck c/o	13 7
C44AC (CP) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 1 Truck c/o (except models below)	11.6 7
C60/44 (7300-7335) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 (CP) 1 Truck c/o SD90AC 1 Truck c/o	12 9 14.5 9
CFFAC-CTE		EMD AC locomotives have a single inverter per truck; therefore, an entire truck may be cut out.	
C44AC-CTE  When in a lead consist or in a remote consist operating in the Full Tractive Effort (FTE) mode  When in a remote consist operating in the Controlled Tractive Effort (CTE) mode  1 TM c/o 2 TM c/o 3 TM c/o	12.1    11   11 8 6		
C60AC 1 TM c/o 2 TM c/o 3 TM c/o	14.7 14 11 8		
GE AC locomotives have one inverter per axle; therefore an individual traction motor may be cut out. The maximum number of axles that may be cut out on a GE AC locomotive is three (3).			
* * *			

If unable to determine the model of a locomotive or its EPA and EDPA, the following TCS inquiry will provide the information:

=UM I unit Number

#### Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train

immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

##### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ⌘ Rear End Only⌘ or ⌘ Rear Rider⌘ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ⌘ Rear Rider⌘ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

## ITEM 10. (CONTINUED)

### 31.8.2 Helper Placement

The term ⌘ Helper⌘ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ⌘ Empty Bulk Commodity Unit Train⌘ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ⌘ Restricted Tonnage Limit⌘ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

#### A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

##### Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

##### Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

##### Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated ☒ Rear End Only☒ or ☒ Rear Rider;☒</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected.</li> </ol> On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.</li> </ol>

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~the~~ other than a loaded or empty bulk commodity unit train~~the~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the calculated position to comply with these train makeup restrictions.

#### 1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by  $\frac{1}{2}$  the EPA of the helper. This number is the tonnage to be placed behind the helper.

$$\frac{\text{(Tonnage of Trains)}}{\text{(EPA of Helper)}} \times \left(\frac{1}{2} \text{ EPA of Helper}\right) = \text{(Tonnage to be placed behind helper)}$$

(Total EPA of all consists)

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Helper Consist: 2 C44AC (24 EPA)  
 Total: 48 EPA

16445 tons x (12) = 4111 (Tonnage to be placed behind helper)  
 48

2. Position Requirements for Cut-in Helper with Additional Helper on Rear  
 To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and  $\frac{1}{2}$  the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

          (Tonnage of Trains)           x (EPA of R e a r Helper +  $\frac{1}{2}$ EPA of  
 Cut-in Helper) = (Tonnage to be placed behind helper)  
 (Total EPA of all consists)

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Middle Helper: 3 C44AC (24 EPA)  
 Helper Consist: 1 C44AC (12 EPA)  
 Total: 72 EPA

16445 tons x (12+18) = 6852 (Tonnage to be placed behind helper)  
 72

Site 4: SP Yuma District (MP 586.0-592.0)

Helper consist must not be placed in multiple with:  
 A road consist between Loma Linda (MP 541.3) and Garnet (MP 589.0)

## Site 7: SP SISKIYOU LINE (MP 393.1 - 403.2)

## Union Pacific

## ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives			
Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives			
GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8		
3 TM c/o	6		

		SD80MAC 1 Truck c/o	13 7
C44AC (CP) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 1 Truck c/o (except models below)	11.6 7
C60/44 (7300-7335) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 (CP) 1 Truck c/o SD90AC 1 Truck c/o	12 9 14.5 9
CFFAC-CTE		EMD AC locomotives have a single inverter per truck; therefore, an entire truck may be cut out.	
C44AC-CTE  When in a lead consist or in a remote consist operating in the Full Tractive Effort (FTE) mode  When in a remote consist operating in the Controlled Tractive Effort (CTE) mode  1 TM c/o 2 TM c/o 3 TM c/o	12.1     11   11 8 6		
C60AC 1 TM c/o 2 TM c/o 3 TM c/o	14.7 14 11 8		
GE AC locomotives have one inverter per axle; therefore an individual traction motor may be cut out. The maximum number of axles that may be cut out on a GE AC locomotive is three (3).			
* * *			

If unable to determine the model of a locomotive or its EPA and EDPA, the following TCS inquiry will provide the information:

=UM I unit Number

#### Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train

immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 ✕ 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

##### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ⌘ Rear End Only⌘ or ⌘ Rear Rider⌘ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ⌘ Rear Rider⌘ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

## ITEM 10. (CONTINUED)

### 31.8.2 Helper Placement

The term ⌘ Helper⌘ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ⌘ Empty Bulk Commodity Unit Train⌘ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ⌘ Restricted Tonnage Limit⌘ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

#### A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

##### Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

##### Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

##### Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated ☒ Rear End Only☒ or ☒ Rear Rider;☒</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected. On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.</li> </ol>
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.</li> </ol>

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~the~~ other than a loaded or empty bulk commodity unit train~~the~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the calculated position to comply with these train makeup restrictions.

#### 1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by  $\frac{1}{2}$  the EPA of the helper. This number is the tonnage to be placed behind the helper.

$$\underline{\text{(Tonnage of Trains)}} \times (\frac{1}{2} \text{ EPA of Helper}) = (\text{Tonnage to be placed behind helper})$$

(Total EPA of all consists)

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Helper Consist: 2 C44AC (24 EPA)  
 Total: 48 EPA

16445 tons x (12) = 4111 (Tonnage to be placed behind helper)  
 48

2. Position Requirements for Cut-in Helper with Additional Helper on Rear  
 To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and  $\frac{1}{2}$  the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

          (Tonnage of Trains)           x (EPA of R e a r Helper +  $\frac{1}{2}$ EPA of  
 Cut-in Helper) = (Tonnage to be placed behind helper)  
 (Total EPA of all consists)

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Middle Helper: 3 C44AC (24 EPA)  
 Helper Consist: 1 C44AC (12 EPA)  
 Total: 72 EPA

16445 tons x (12+18) = 6852 (Tonnage to be placed behind helper)  
 72

## Site 9: SHASTA BLACK BUTTE DIST. (MP 322.1 -- 332.6)

## Union Pacific

## ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives			
Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives			
GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8		
3 TM c/o	6		

		SD80MAC 1 Truck c/o	13 7
C44AC (CP) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 1 Truck c/o (except models below)	11.6 7
C60/44 (7300-7335) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 (CP) 1 Truck c/o SD90AC 1 Truck c/o	12 9 14.5 9
CFFAC-CTE		EMD AC locomotives have a single inverter per truck; therefore, an entire truck may be cut out.	
C44AC-CTE  When in a lead consist or in a remote consist operating in the Full Tractive Effort (FTE) mode  When in a remote consist operating in the Controlled Tractive Effort (CTE) mode  1 TM c/o 2 TM c/o 3 TM c/o	12.1    11   11 8 6		
C60AC 1 TM c/o 2 TM c/o 3 TM c/o	14.7 14 11 8		
GE AC locomotives have one inverter per axle; therefore an individual traction motor may be cut out. The maximum number of axles that may be cut out on a GE AC locomotive is three (3).			
* * *			

If unable to determine the model of a locomotive or its EPA and EDPA, the following TCS inquiry will provide the information:

=UM I unit Number

#### Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train

immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 ☒ 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

##### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ⌘ Rear End Only⌘ or ⌘ Rear Rider⌘ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ⌘ Rear Rider⌘ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

## ITEM 10. (CONTINUED)

### 31.8.2 Helper Placement

The term ⌘ Helper⌘ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ⌘ Empty Bulk Commodity Unit Train⌘ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ⌘ Restricted Tonnage Limit⌘ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated ☒ Rear End Only☒ or ☒ Rear Rider;☒</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected. On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.</li> </ol>
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.</li> </ol>

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~the~~ other than a loaded or empty bulk commodity unit train~~the~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the calculated position to comply with these train makeup restrictions.

##### 1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by  $\frac{1}{2}$  the EPA of the helper. This number is the tonnage to be placed behind the helper.

$$\text{(Tonnage of Trains)} \times (\frac{1}{2} \text{ EPA of Helper}) = (\text{Tonnage to be placed behind helper})$$

(Total EPA of all consists)

Example: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
Helper Consist: 2 C44AC (24 EPA)  
 Total: 48 EPA

$\frac{16445 \text{ tons}}{48} \times (12) = 4111$  (Tonnage to be placed behind helper)

2. Position Requirements for Cut-in Helper with Additional Helper on Rear  
 To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and  $\frac{1}{2}$  the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

$$\frac{\text{(Tonnage of Trains)}}{\text{(Total EPA of all consists)}} \times (\text{EPA of Rear Helper} + \frac{1}{2} \text{EPA of Cut-in Helper}) = \text{(Tonnage to be placed behind helper)}$$

Example: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Middle Helper: 3 C44AC (24 EPA)  
Helper Consist: 1 C44AC (12 EPA)  
 Total: 72 EPA

$\frac{16445 \text{ tons}}{72} \times (12+18) = 6852$  (Tonnage to be placed behind helper)

Site 9: Shasta Black Butte Dist. (MP 322.1-332.6)

The following applies when operating between  
 Black Butte and Klamath Falls:

Lead consist of a loaded bulk-commodity unit train must not exceed 37 axles of power;

Lead consist of other than a loaded bulk-commodity unit train must not exceed 32 axles of power. These restrictions include helper engines added to headend of train.

The following applies when operating between  
 Dunsmuir and Black Butte:

Lead consist of all northward trains operating between Dunsmuir and Black Butte must not exceed 31 axles of power. This restriction includes helper engines added to headend of train.

Train Make-up Restrictions Applicable between

## Dunsmuir and Azalea:

Note: asterisk (\*) in sections below can be a letter or a number.

On ascending grades between designated limits, the amount of trailing tonnage behind a RESTRICTED car must not exceed the tonnage listed in the "Maximum Trailing Tonnage" table. When train includes any helper engine positioned within the trailing tonnage behind a restricted car, subtract the tonnage handled by the helper using the following calculation:

Multiply the EPA of the helper by the factor "164". Subtract this tonnage from the total trailing tonnage behind a restricted car. This final figure is the actual trailing tonnage which must comply with the "Maximum Trailing Tonnage" table.

Maximum Trailing Tonnage Behind Car			
Type of Car	1,000 Tons	2,500 Tons	3,000 Tons
Two-Axle Front Runner Car (P12)	Weighs less than 25 tons	Weighs 25 tons or more	
Solid drawbar-connected Two-Axle Car (P4)	All Conditions		
Articulated Doublestack Car (P3*, P4*, P5*)			One or more empty platforms
Multi-platform Spine Car (P3*, P5*)		One or more empty platforms	All platforms loaded
Car 73 feet in length or longer; weighs less than 50 tons		Coupled to another car less than 73 feet in length	Coupled to another car 73 feet in length or longer
Car is between 65 feet and 73 feet in length; weighs less than 50 tons			Coupled to another car less than 65 feet in length
TOFC/COFC flat car			Loaded on one end only

B. When train tonnage exceeds 3,000 tons, the following cars must be no closer than the eleventh car behind the engine:

1. Empty car 73 feet or longer;
2. TOFC/COFC car loaded on one end only;
3. Articulated double stack car having one or more empty platforms.

C. When train tonnage exceeds 3,600 tons, each of the first five cars behind the lead consist must weigh at least 50 tons or more and:

1. Be 73 feet or longer; or
2. Be less than 73 feet in length.

D. When train tonnage exceeds 4,000 tons, each of the first five cars behind the lead consist must be less than 73 feet in length.

E. When train tonnage exceeds 8,000 tons, each of the first 10 cars behind the lead consist must weigh 50 tons or more and be less than 73 feet in length.

In determining train make-up restrictions in A, B, C, D and E above, be governed by the following:

Articulated doublestack car or spine car(P3\*, P4\*, P5\*) having all platform/wells loaded is to be considered the equivalent of 2 1/2 cars, each weighing 50 tons and each less than 73 feet in length.

Articulated doublestack car or spine car(P3\*, P4\*, P5\*) having any empty platform/wells is to be considered the equivalent of 2 1/2 cars, each weighing less than 50 tons and each less than 73 feet in length.

Two-unit solid drawbar-connected long cars (P2):

1. If the total weight of the car is 120 tons or more, it is to be considered the equivalent of two cars, each weighing 50 tons and each over 73 feet in length.

2. If the total weight of the car is less than 120 tons, it is to be considered the equivalent of two cars, each weighing less than 50 tons and each over 73 feet in length.

Three-unit solid drawbar-connected doublestack car (P3\*):

1. If the total weight of the car is 150 tons or more and all platforms are loaded, it is to be considered the equivalent of three cars, each weighing 50 tons and each less than 73 feet in length.

2. If the total weight of the car is less than 150 tons, it is to be considered the equivalent of three cars, each weighing less than 50 tons and each less than 73 feet in length.

Northward trains between Dunsmuir and Azalea exceeding 5,500 feet in length (excluding locomotives) must not have helper double-headed or attached to lead consist in multiple. Helper must be entrained per Rule 31.8.2 Helper Placement.

Rule 31.8.2. REVISE following portion of Rule 31.8.2 System Helper Placement Table to read:

A. Rear or Cut-in Requirement for Helper:

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

If rear helper or cut-in helper exceeds EPA requirements in tables below, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

LOADED BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
23 or less:	May be placed on rear or cut in as outlined in Part B. When placed on rear, it must be placed ahead of any caboose.
24 to 36:	May be cut in as outlined in Part B.

EMPTY BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
11 or less:	May be placed on rear or at cut-in position as outlined in Part B. When placed on rear, it must be placed ahead of any caboose.
12 to 28	Must be cut in as outlined in Part B.

OTHER THAN A LOADED BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
Any helper:	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale testcars;</li> </ol>

	<p>3. Cars designated <del>✖</del> Rear End Only<del>✖</del> or <del>✖</del> Rear Rider<del>✖</del> ;</p> <p>4. Occupied caboose;</p> <p>5. Single platform two-axle car in series TTOX;</p> <p>6. Solid drawbar-connected four platform car in series TTFX;</p> <p>7. Solid drawbar-connected three platform car in series FEC 60000-60199;</p> <p>8. Solid drawbar-connected five platform car in series CN 677000-677139;</p> <p>9. Gondola car in series AMGX that is solid-drawbar connected. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.</p>
7 or less:	Placed on rear.
8 to 16:	<p>Placed on rear. The following make up restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be:</p> <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer weighing less than 60 tons.</li> </ol> <p>When train makeup within the restricted tonnage limit immediately ahead of the helper does not meet the above requirements, helper may be cut into train at a location that does permit complying with makeup restrictions. When cut into train under this condition Part B will not apply.</p>
17 to 23:	<p>Placed on rear. The following make up restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be:</p> <ol style="list-style-type: none"> <li>1. Multi-platform car having an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer, unless the car is less than 82 feet in length and weighs 60 tons or more;</li> <li>3. Car weighing less than 45 tons.</li> </ol> <p>When train makeup within the restricted tonnage limit immediately ahead of the helper does not meet the above requirements, helper may be cut into train at a location that does permit complying with makeup restrictions. When cut into train under this condition Part B will not apply.</p>
24 to 36	<p>Must be cut in as outlined in Part B. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be:</p> <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer;</li> <li>3. Car weighing less than 45 tons.</li> </ol>

When helper exceeds 7 EPA, the cars that make up the tonnage ahead of the helper as indicated in the following table must comply with the train makeup restrictions contained in Rule 31.8.2 Helper Placement.

RESTRICTED TONNAGE TABLE - Dunsmuir to Azalea		
Helper EPA	Rear Helper	Cut-in Helper
8 to 12	800	400
13 to 16	1050	525
17	1250	625
18	1500	750
19	1750	850
20	1950	950
21	2200	1100
22	--	1200
23	--	1325
24	--	1450
25	--	1550
26	--	1675
27	--	1800
28	--	1900
29	--	2025
30	--	2150
31	--	2250
32	--	2375
33	--	2475
34	--	2600
35	--	2725
36	--	2825

Site 12: SP ROSEVILLE DIST. TRACKS #1 AND #2 (MP 150.0 -- 160.0)

### Union Pacific

#### ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives			
Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives			
GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8	SD80MAC	13
3 TM c/o	6	1 Truck c/o	7
C44AC (CP)	12.1	SD9043	11.6
1 TM c/o	11	1 Truck c/o	7
2 TM c/o	8	(except models	
3 TM c/o	6	below)	
C60/44 (7300-7335)	12.1	SD9043 (CP)	12
1 TM c/o	11	1 Truck c/o	9
2 TM c/o	8	SD90AC	14.5
3 TM c/o	6	1 Truck c/o	9
CFFAC-CTE		EMD AC locomotives have a single inverter per truck; therefore, an entire truck may be cut out.	
C44AC-CTE			
When in a lead consist or in a remote consist operating in the Full Tractive Effort (FTE) mode	12.1		
When in a remote consist operating in the Controlled Tractive Effort (CTE) mode	11		
1 TM c/o	11		
2 TM c/o	8		
3 TM c/o	6		
C60AC	14.7		
1 TM c/o	14		
2 TM c/o	11		
3 TM c/o	8		
GE AC locomotives have one inverter per axle; therefore an individual traction motor may be cut out. The maximum number of axles that may be cut out on a GE AC locomotive is three (3).			
* * *			

If unable to determine the model of a locomotive or its EPA and EDPA, the following TCS inquiry will provide the information:

=UM I unit Number

Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 ☒ 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ⌘ Rear End Only⌘ or ⌘ Rear Rider⌘ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ⌘ Rear Rider⌘ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

## ITEM 10. (CONTINUED)

### 31.8.2 Helper Placement

The term ⌘ Helper⌘ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ⌘ Empty Bulk Commodity Unit Train⌘ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten

sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ~~Restricted Tonnage Limit~~ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

#### A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

##### Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

##### Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

##### Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated <del>Rear End Only</del> or <del>Rear Rider</del>;</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected. On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.</li> </ol>
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well</li> </ol>

or two consecutive empty platform/wells;  
 2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~the~~ other than a loaded or empty bulk commodity unit train~~the~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the calculated position to comply with these train makeup restrictions.

#### 1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by ½ the EPA of the helper. This number is the tonnage to be placed behind the helper.

$$\frac{\text{(Tonnage of Trains)}}{\text{(Total EPA of all consists)}} \times (\frac{1}{2} \text{ EPA of Helper}) = (\text{Tonnage to be placed behind helper})$$

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
Helper Consist: 2 C44AC (24 EPA)  
 Total: 48 EPA

$$\frac{16445 \text{ tons}}{48} \times (12) = 4111 \text{ (Tonnage to be placed behind helper)}$$

2. Position Requirements for Cut-in Helper with Additional Helper on Rear  
 To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and ½ the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

$$\frac{\text{(Tonnage of Trains)}}{\text{(Total EPA of all consists)}} \times (\text{EPA of R e a r Helper} + \frac{1}{2} \text{EPA of Cut-in Helper}) = (\text{Tonnage to be placed behind helper})$$

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Middle Helper: 3 C44AC (24 EPA)  
Helper Consist: 1 C44AC (12 EPA)  
 Total: 72 EPA

$$\frac{16445 \text{ tons}}{72} \times (12+18) = 6852 \text{ (Tonnage to be placed behind helper)}$$

Site 12: SP Roseville Dist. Tracks #1 and #2 (MP 150.0-160.0)

The following applies when operating between Roseville and Colfax on Trk. 1 and between Colfax and Truckee eastward:

Lead consist of a loaded bulk-commodity unit train must not exceed 38 EPA.

The following applies when operating westward between Truckee and Colfax:

Lead consist of a loaded bulk-commodity unit train must not exceed 42 EPA. Lead consist of other than a loaded bulk-commodity unit train must not exceed 34 EPA between Colfax and Truckee. These restrictions include helper engines added to headend of train.

The following applies when operating on descending grades between Rocklin and Lawton:

Train Make-up Restrictions applicable when operating between Lawton and Rocklin.

Note: asterisk (\*) in sections below can be a letter or a number.

On ascending grades between designated limits, the amount of trailing tonnage behind a RESTRICTED car must not exceed the tonnage listed in the ☒ Maximum Trailing Tonnage☒ table. When train includes any helper engine positioned within the trailing tonnage behind a restricted car, subtract the tonnage handled by the helper using the following calculation:

Eastward between Roseville and Norden:

Multiply the EPA of the helper by the factor 164. Subtract this tonnage from the total trailing tonnage behind a restricted car. This final figure is the actual trailing tonnage which must comply with the ☒ Max Trailing Tonnage☒ table.

Westward between Truckee and Norden:

Multiply the EPA of the helper by the factor 170. Subtract this tonnage from the total trailing tonnage behind a restricted car. This final figure is the actual trailing tonnage which must comply with the ☒ Max Trailing Tonnage☒ table.

Maximum Trailing Tonnage				
Type of Car	1,000 Tons	2,500 Tons	3,000 Tons	4,100 Tons
Two-axle Front Runner Car (P12)	Weights less than 25 tons	Weights 25 tons or more		
Solid drawbar-connected two-axle car (P4)	Under all conditions			
Articulated doublestack car (P3*, P4*, P5*)			One or more empty platforms	
Multi-platform Spine Car (P3*, P5*)			One or more empty platforms	
Car 73 feet in length or longer weighing less than 50 tons			Coupled to a car less than 73 feet in length	Coupled to another car 73 feet in length or longer

#### SI-13 TRAIN MAKE-UP RESTRICTIONS Continued...

B. When train tonnage exceeds 3,600 tons, each of the first five cars behind the lead consist must weigh at least 50 tons. This restriction will not apply if train does not contain five cars that weigh 50 tons or more.

C. When train tonnage exceeds 4,100 tons, the first five cars behind the lead consist must each weigh at least 50 tons and:

1. Be 73 feet or longer; or
2. Be less than 73 feet in length.

In determining train make-up restrictions in A, B and C above, be governed by the following when dealing with these non-conventional cars:

Articulated doublestack car or spine car(P3\*, P4\*, P5\*) having all platform/wells loaded is to be considered the equivalent of 2 1/2 cars, each weighing 50 tons and each less than 73 feet in length.

Articulated doublestack car or spine car(P3\*, P4\*, P5\*) having any empty platform/wells is to be considered the equivalent of 2 1/2 cars, each weighing less than 50 tons and each less than 73 feet in length.

Two-unit solid drawbar-connected long cars (P2):

1. If the total weight of the car is 120 tons or more, it is to be considered the equivalent of two cars, each weighing 50 tons and each over 73 feet in length.
2. If the total weight of the car is less than 120 tons, it is to be considered the equivalent of two cars, each weighing less than 50 tons and each over 73 feet in length.

Three-unit solid drawbar-connected doublestack car (P3\*):

1. If the total weight of the car is 150 tons or more and all platforms are loaded, it is to be considered the equivalent of three cars, each weighing 50 tons and each less than 73 feet in length.
2. If the total weight of the car is less than 150 tons, it is to be considered the equivalent of three cars, each weighing less than 50 tons and each less than 73 feet in length.

When train includes any helper engine positioned within the trailing tonnage behind a car, subtract the tonnage handled by the helper using the following calculation:

Eastward between Roseville and Norden:

Multiply the EPA of the helper by the factor  $\frac{164}{100}$ . Subtract this tonnage from the total trailing tonnage behind a car. This final figure is the actual trailing tonnage . . . .

Westward between Truckee and Norden:

Multiply the EPA of the helper by the factor  $\frac{170}{100}$ . Subtract this tonnage from the total trailing tonnage behind a car.

When helper exceeds 7 EPA, the cars that make up the tonnage ahead of the helper as indicated in the following table must comply with the train makeup restrictions contained in Rule 31.8.2 Helper Placement.

RESTRICTED TONNAGE TABLE				
Sparks-Norden			Rocklin-Norden	
Helper EPA	Rear Helper	Cut-in Helper	Rear Helper	Cut-in Helper
8 to 18	1000	500	700	350
19	1250	650	950	500
20	1450	750	1200	600
21	1650	850	1450	750
22	1850	950	1750	900
23	2050	1050	2000	1000
24	--	1150	--	1150
25	--	1250	--	1250
26	--	1350	--	1400
27	--	1450	--	1550
28	--	1550	--	1650
29	--	1650	--	1800
30	--	1750	--	1900
31	--	1900	--	2050
32	--	2000	--	2200
33	--	2100	--	2300
34	--	2200	--	2450
35	--	2300	--	2600
36	--	2400	--	2700

Rule 31.8.2. REVISE following portion of Rule 31.8.2 System Helper Placement Table to read:

A. Rear or Cut-in Requirement for Helper:

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

If rear helper or cut-in helper exceeds EPA requirements in below tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

LOADED BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
32 or less:	May be placed on rear or cut in as outlined in Part B. When placed on rear, it must be placed ahead of any caboose.
33 to 55:	May be placed on rear or cut in as outlined in Part B.

EMPTY BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
16 or less:	May be placed on rear or cut in as outlined in Part B. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut in as outlined in Part B.

OTHER THAN A LOADED BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
Any helper:	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale testcars;</li> <li>3. Cars designated <del>⌘</del> Rear End Only<del>⌘</del> or <del>⌘</del> Rear Rider<del>⌘</del> ;</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-60199;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.</li> </ol>
7 or less:	Placed on rear.
8 to 16:	Placed on rear. The following make up restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer weighing less than 60 tons.</li> </ol> <p>When train makeup within the restricted tonnage limit immediately ahead of the helper does not meet the above requirements, helper may be cut into train at a location that does permit complying with makeup restrictions. When cut into</p>

	train under this condition Part B will not apply.
17 to 23:	<p>Placed on rear. The following make up restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be:</p> <ol style="list-style-type: none"> <li>1. Multi-platform car having an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer, unless the car is less than 82 feet in length and weighs 60 tons or more;</li> <li>3. Car weighing less than 45 tons.</li> </ol> <p>When train makeup within the restricted tonnage limit immediately ahead of the helper does not meet the above requirements, helper may be cut into train at a location that does permit complying with makeup restrictions. When cut into train under this condition Part B will not apply.</p>
24 to 36	<p>Must be cut in as outlined in Part B. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be:</p> <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer;</li> <li>3. Car weighing less than 45 tons.</li> </ol>

## Site 16: SP BAKERSFIELD LINE (MP 335.0 -- 359.9)

## Union Pacific

## ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives			
Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives			
GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8	SD80MAC	13
3 TM c/o	6	1 Truck c/o	7
C44AC (CP)	12.1	SD9043	11.6
1 TM c/o	11	1 Truck c/o	7
2 TM c/o	8	(except models	
3 TM c/o	6	below)	
C60/44 (7300-7335)	12.1	SD9043 (CP)	12
1 TM c/o	11	1 Truck c/o	9
2 TM c/o	8	SD90AC	14.5
3 TM c/o	6	1 Truck c/o	9
CFFAC-CTE		EMD AC locomotives have a single inverter per truck; therefore, an entire truck may be cut out.	
C44AC-CTE			
When in a lead consist or in a remote consist operating in the Full Tractive Effort (FTE) mode	12.1		
When in a remote consist operating in the Controlled Tractive Effort (CTE) mode	11		
1 TM c/o	11		
2 TM c/o	8		
3 TM c/o	6		
C60AC	14.7		
1 TM c/o	14		
2 TM c/o	11		
3 TM c/o	8		
GE AC locomotives have one inverter per axle; therefore an individual traction motor may be cut out. The maximum number of axles that may be cut out on a GE AC locomotive is three (3).			
* * *			

If unable to determine the model of a locomotive or its EPA and EDPA, the following TCS inquiry will provide the information:

=UM I unit Number

Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ⌘ Rear End Only⌘ or ⌘ Rear Rider⌘ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ⌘ Rear Rider⌘ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

## ITEM 10. (CONTINUED)

### 31.8.2 Helper Placement

The term ⌘ Helper⌘ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ⌘ Empty Bulk Commodity Unit Train⌘ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten

sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ~~✕~~ Restricted Tonnage Limit ~~✕~~ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

#### A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

##### Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

##### Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

##### Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated <del>✕</del> Rear End Only <del>✕</del> or <del>✕</del> Rear Rider; <del>✕</del></li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected.</li> </ol> <p>On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.</p>
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well</li> </ol>

or two consecutive empty platform/wells;

2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~the~~ other than a loaded or empty bulk commodity unit train~~the~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the calculated position to comply with these train makeup restrictions.

#### 1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by  $\frac{1}{2}$  the EPA of the helper. This number is the tonnage to be placed behind the helper.

$$\frac{(\text{Tonnage of Trains})}{(\text{Total EPA of all consists})} \times (\frac{1}{2} \text{ EPA of Helper}) = (\text{Tonnage to be placed behind helper})$$

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
Helper Consist: 2 C44AC (24 EPA)  
 Total: 48 EPA

$$\frac{16445 \text{ tons}}{48} \times (12) = 4111 \text{ (Tonnage to be placed behind helper)}$$

2. Position Requirements for Cut-in Helper with Additional Helper on Rear  
 To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and  $\frac{1}{2}$  the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

$$\frac{(\text{Tonnage of Trains})}{(\text{Total EPA of all consists})} \times (\text{EPA of R e a r Helper} + \frac{1}{2} \text{EPA of Cut-in Helper}) = (\text{Tonnage to be placed behind helper})$$

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Middle Helper: 3 C44AC (24 EPA)  
Helper Consist: 1 C44AC (12 EPA)  
 Total: 72 EPA

$$\frac{16445 \text{ tons}}{72} \times (12+18) = 6852 \text{ (Tonnage to be placed behind helper)}$$

Site 16: SP Bakersfield Line (MP 335.0-359.9)

BNSF trains will be governed by BNSF train makeup restrictions instead of UP makeup restrictions.

Train Makeup Restrictions Applicable on the Mojave Subdivision:

On ascending grades between designated limits, the amount of trailing tonnage behind a RESTRICTED car must not exceed the tonnage listed in the ~~Maximum~~ Trailing Tonnage table. When train includes any helper engine positioned within the trailing tonnage behind a restricted car, subtract the tonnage handled by the helper using the following calculation:

Multiply the EPA (Equivalent Powered Axles) of the helper by the factor ~~164~~. Subtract this tonnage from the total trailing tonnage behind a restricted car. This final figure is the actual trailing tonnage which must comply with the ~~Maximum~~

Trailing Tonnage table.

(Note: \* character below can be either a letter or number)

Maximum Trailing Tonnage				
Type of Car	1,000 Tons	2,500 Tons	3,000 Tons	4,100 Tons
Two-axle Front Runner Car (P12)	Weights less than 25 tons	Weights more than 25 tons		
Solid drawbar-connected two-axle Car (P4)	Under all conditions			
Articulated doublestack car (P3*, P4*, P5*)			One or more empty platforms	
Multi-platform articulated Spine Car (P3*, P4*, P5*)			Has one or more empty platforms	
Car 73 feet in length or longer weighing less than 50 tons			If coupled to a car less than 73 feet in length	If coupled to another car 73 feet in length or longer

B. When train tonnage exceeds 3,600 tons, each of the first five cars behind the road engine must weigh at least 50 tons. This restriction will not apply if train does not contain five cars that weigh 50 tons or more.

When train tonnage exceeds 4,100 tons, each of the first five cars behind the road engine must weigh at least 50 tons and:

1. All be 73 feet or longer in length; or
2. All be less than 73 feet in length.

C. In determining train makeup restrictions in parts A & B above, be governed by the following when dealing with these non-conventional cars --

ARTICULATED DOUBLE STACK CAR OR SPINE CAR (P3\*,P4\*,P5\*) having all platforms/wells loaded is to be considered the equivalent of 2 1/2 cars each weighing 50 tons and each less than 73 feet in length.

Articulated doublestack car or spine car (P3\*, P4\*, P5\*) having any empty platform/wells is to be considered the equivalent of 2 1/2 cars, each weighing less than 50 tons and each less than 73 feet in length.

#### SI-13 TRAIN MAKE-UP RESTRICTIONS Cont...

##### THREE-UNIT SOLID DRAWBAR-CONNECTED DOUBLE STACK CAR (P3\*)

A. If the total weight of the car is 150 tons or more and all platforms are loaded, it is to be considered the equivalent of three cars, each weighing 50 tons and each less than 73 feet in length.

B. If the total weight of the car is less than 150 tons, it is to be considered the equivalent of three cars, each weighing less than 50 tons and each less than 73 feet in length.

(Note: \* character can be either a letter or a number).

\* \* \*

#### RESTRICTED TONNAGE REQUIREMENTS:

When helper exceeds 7 EPA, the cars that make up the tonnage ahead of the helper must comply with the makeup restriction contained in Rule 31.8.2 (Helper Placement). In the table below, column (2) & (3) apply Ilmon to Summit; column (4) & (5) apply West Colton to Hiland and Mojave to Summit.

RESTRICTED TONNAGE TABLE				
(1) Helper EPA	(2) Rear Helper	(3) Cut-in Helper	(4) Rear Helper	(5) Cut-in Helper
8 to 16	500	250	500	250
17	800	400	500	250
18	1000	500	500	250
19	1250	625	500	250
20	1450	725	500	250
21	1700	850	500	250
22	1950	975	650	250
23	2150	1075	900	250
24	--	1000	--	250
25	--	1100	--	250
26	--	1200	--	350
27	--	1350	--	450
28	--	1450	--	600
29	--	1570	--	700
30	--	1700	--	800
31	--	1800	--	900
32	--	1900	--	1050
33	--	2050	--	1150
34	--	2200	--	1300
35	--	2300	--	1400
36	--	2400	--	1500

Following applies to UP trains operating from Ilmon to Summit:

- \* Lead consist of a loaded bulk-commodity unit train must not exceed 38 EPA;
- \* Lead consist of other than a loaded bulk-commodity unit train must not exceed 34 EPA.

Change Item 2 formula to read:

= (Minimum Tonnage allowed behind helper) as shown below.

Following item applies on the Mojave Subdivision only and involves changing tonnage requirements behind the cut-in Helper.

ADD following item:

From BAKERSFIELD to MOJAVE and WEST COLTON to BAKERSFIELD

Position Requirements for one cut-in Helper:

1. To determine the maximum required tonnage behind a cut-in helper, divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by 1/2 the EPA of the helper.

$$\frac{\text{(Tonnage of train)}}{\text{(Total EPA of Helper and Lead Consist)}} \times (1/2 \text{ EPA of Helper}) = \text{(Maximum Tonnage Allowed Behind Helper)}$$

Example: 100-0-9840 tons  
 Lead Consist: 3 C40-8  
 Helper Consist: 3 C40-8

-----  
Total: 60 EPA

9840 tons x (15) = 2460 (Maximum Tonnage allowed behind helper)  
60

2. To determine the minimum required tonnage behind a cut-in helper, divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by 1/3 the EPA of the helper.

(Tonnage of train) x (1/3 EPA of Helper) = (Maximum Tonnage Allowed Behind Helper  
(Total EPA of Helper  
and Lead Consist)

Example: 100-0-9840 tons  
Lead Consist: 3 C40-8  
Helper Consist: 3 C40-8  
-----

Total: 60 EPA

9840 tons x (10) = 1640 (Maximum Tonnage allowed behind helper)  
60

From MOJAVE to WEST COLTON:

Tonnage behind the helper must not exceed 4000 tons. If tonnage is less than 1600 tons a maximum of 23 EPA may be on line.

REVISE p.17 portion under part (5): b. to read:

b. Car less than 73 feet in length coupled to a car 73 feet in length or longer unless the car is less than 82 feet in length and weighs 60 tons or more.

REVISE p.17, line under Empty Bulk-Commodity Unit Train reading:

(5) 24 to 36 must be cut in as outlined in Part B.

to read:

(5) 24 to 36 must be cut in per Mojave subdivision  
General Order item.

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Rule 31.8.2. REVISE following portion of Rule 31.8.2 System Helper Placement Table to read:

A. Rear or Cut-in Requirement for Helper:

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

If rear helper or cut-in helper exceeds EPA requirements in below tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

LOADED BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
32 or less:	May be placed on rear or cut in as outlined in Part B. When placed on rear, it must be placed ahead of any caboose.

33 to 55:	May be placed on rear or cut in as outlined in Part B.
-----------	--

EMPTY BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
16 or less:	May be placed on rear or cut in as outlined in Part B. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut in as outlined in Part B.

OTHER THAN A LOADED BULK-COMMODITY UNIT TRAIN	
Helper EPA	Placement Requirement
Any helper:	<p>Must be placed ahead of:</p> <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale testcars;</li> <li>3. Cars designated ⌘ Rear End Only⌘ or ⌘ Rear Rider⌘ ;</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-60199;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected.</li> </ol> <p>On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.</p>
7 or less:	Placed on rear.
8 to 16:	<p>Placed on rear. The following make up restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be:</p> <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer weighing less than 60 tons.</li> </ol> <p>When train makeup within the restricted tonnage limit immediately ahead of the helper does not meet the above requirements, helper may be cut into train at a location that does permit complying with makeup restrictions. When cut into train under this condition Part B will not apply.</p>
17 to 23:	<p>Placed on rear. The following make up restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be:</p> <ol style="list-style-type: none"> <li>1. Multi-platform car having an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer, unless the car is less than 82 feet in length and weighs 60 tons or more;</li> <li>3. Car weighing less than 45 tons.</li> </ol> <p>When train makeup within the restricted tonnage limit immediately ahead of the helper does not meet the above</p>

	requirements, helper may be cut into train at a location that does permit complying with makeup restrictions. When cut into train under this condition Part B will not apply.
24 to 36	<p>Must be cut in as outlined in Part B. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be:</p> <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car less than 73 feet in length coupled to a car 73 feet in length or longer;</li> <li>3. Car weighing less than 45 tons.</li> </ol>

### SI-13 TRAIN MAKE-UP RESTRICTIONS

REVISE p.18, paragraph reading:

On ascending grades between designated limits, the amount of trailing tonnage behind a RESTRICTED car must not exceed the tonnage listed in the ☒ Maximum Trailing Tonnage☒ table. When train includes any helper engine positioned within the trailing tonnage behind a restricted car, subtract the tonnage handled by the helper using the following calculation:

TO READ:

Between designated limits, the amount of trailing tonnage behind a RESTRICTED car must not exceed the tonnage listed in the ☒ Maximum Trailing Tonnage☒ table. On ascending grades when train includes any helper engine positioned within the trailing tonnage behind a restricted car, subtract the tonnage handled by the helper using the following calculation:

ADD to p.18 the following item under Part C:

Articulated Double Stack cars designated by TCS car type P1 will be considered as P3, P4 or P5 by the number of platforms listed on the consist. Example: DTTA 1234, DTTB 1234, DTTT 1234 are a three platform P3\*.

### ADD THE FOLLOWING:

UP trains operating Mojave Subdivision between West Colton and Silverwood to and from BNSF may use BNSF train make up rules or UP CIMA Subdivision train make up rules.

## BNSF

## Rules Applicable to BNSF RR Operations on CPUC Sites

## Locomotive Restrictions ☒

ABTH 102.11

## Powered Axles Limitation

Locomotive consists must not have in excess of 42 equivalent powered axles. Excess axles of power must be isolated. Unless otherwise restricted, trains made up entirely of intermodal equipment may operate with a maximum of 48 equivalent powered axles.

## Helper Locomotive Operation ☒

Located in ABTH 102.12.6

## Powered Axle Limitations

Unless individual subdivisions special instructions specify otherwise, the following rated powered axle (RPA) limitations apply to each DP/helper consists:

(Use Locomotive Data Table to determine powered axle ratings)

- All trains (excluding unit bulk commodity trains) - 16 RPA or less on rear and 24 RPA, cut in.
- Solid, empty unit bulk commodity trains - 12 RPA or less on rear or cut in.
- Solid, loaded unit bulk commodity trains - 24 RPA or less on rear or cut in. (bulk commodity trains = coal, grain, potash, taconite, molten sulphur, etc.)

## DP/Helper Train Make Up Restrictions

1. All DP/helpers locomotives must be placed ahead of:
  - a. All TTOX (single unit 2 axle equipment) and TTFX (4-unit solid drawbar connected 2-axle per unit equipment), regardless of weight.
  - b. 2-axle scale test cars.
  - c. Cars designated ☒ Rear end only ☒.
  - d. Occupied caboose.
2. No train make up restrictions apply except for rear end only cars listed in Item 1 above when DP/helper locomotives consist is rated at 8 powered axles or less.
3. Except for empty unit bulk commodity trains, which may be operated with 12 rated powered axles, when DP/helper locomotive consist powered axle rating is between 9 and 24 powered axles, the following cars may not be placed:  
Within 10 cars/platforms AHEAD a DP/helper consist if on rear of train.  
or Within 5 cars/platforms AHEAD a cut in DP/helper consist.
  - a. A conventional car (non multi-platform) weighing less than 45 tons.
  - b. A multi-platform car having a single empty platform.
  - c. A car 45 feet or less in length coupled to a car 80 feet or longer in length.

Note: Does not apply to multi-platform cars except those with individual

platforms exceeding 80 ft. in length. Examples: Twin flat cars and AutoMax cars.

- d. Any 80 foot or longer flat car with a single trailer/container, regardless of weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars, TTEX and RTTX series) with a single trailer/container on either platform.

#### Powered Axle Limitations

In addition, above cars must not be within 5 cars/platforms BEHIND a cut in DP/helper consist if trailing tonnage behind helpers exceeds the following tonnages when operating over specified locations.

and DP/helper consist must not vary by more than 16 rated powered axles.

#### Caboose Placement ☒

#### System Special Instructions Page 9 Item 3(G)

#### 3(G). Caboose Placement

All cabooses other than the working caboose moving in trains for any reason, are to be handled on rear of train or just ahead of working caboose, except:

- A. Trains operating with helpers on the rear end must have cabooses other than the working caboose placed behind helpers.
- B. Trains or yard movements limited to maximum speed of 10 MPH may operate with caboose placed anywhere in train.
- C. Cars with defective couplers may be transported to repair facilities behind caboose.

#### BNSF RR Current Train Make-Up Instructions

#### Trailing Tonnage Restrictions:

1. The following cars must not be ahead of more than 2,500 trailing tons:
  - All loaded or empty 2-axle cars (series TTOX and TTFX)
2. The following cars must not be ahead of more than 3,000 trailing tons (long car/short car)
  - Any car 80 feet or longer coupled to any car 45 feet or shorter.

Exception: Next to locomotive crane 45 feet or less if coupled to boom car 80 feet or longer.

Note: Item 2 does not apply to multi-platform cars except those with individual platforms exceeding 80 feet.

(Examples: Twin flat cars and Automax cars)

3. The following cars must not be ahead of more than 5,500 trailing tons

- Multi-platform spine cars, regardless of how loaded.

Total Train Tonnage Restrictions:

4. Trains greater than 5,500 total tons ~~✖~~The following cars must not be within the first 10 cars/platforms:

- Any conventional car (non-multi-platform) weighing less than 45 tons.
- Any 80 feet or longer flat car with a single trailer/container, regardless of car weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars TTEX & RTTX series) with a single trailer/container on either segment/platform.

- Multi-platform cars with any empty platforms. Additional subdivision restrictions (excludes solid empty bulk commodity trains):

On Glorieta (MP 775.0-MP 842.0) and Raton (MP 639.0-MP 660.0) Subdivisions the following additional restrictions apply:

Trains greater than 2,500 tons and less than 3,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 3,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

On Cajon (Main 2, MP 56.6-MP 62.8), Gateway (MP 178.0-188.0), Mojave (MP 331.3-MP 381.3), Scenic (MP 1694.5-MP 1731.3) and Stampede (MP 41.0-MP 58.5) the following additional restrictions apply:

Trains greater than 3,500 tons and less than 4,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 4,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

Note: Unless otherwise authorized, all trains destined Cajon or Mojave Subdivisions will be made up in compliance with above guidelines for Cajon Subdivision (Main 2, MP 56.6-MP 62.8) and Mojave Subdivision MP 331.3-MP 381.3).

5. Trains greater than 7,000 tons ~~✖~~

- Rear 1/4 of the train must not weigh more than 1/3 of the total weight.

Exception: This does not apply to:

- trains made up entirely of cars weighing a minimum of 45 tons each.
- solid loaded or solid empty unit bulk commodity trains.
- trains made up entirely of intermodal equipment.

NOTE: If a train is determined to be out of compliance with these train make-up rules and maximum authorized speed exceeds 45 MPH, speed must immediately be reduced to 45 MPH and train dispatcher notified.

Train must not exceed a maximum speed of 45 MPH until it reaches the location specified by the train dispatcher to correct the condition.

## Site 22: UP Feather River Division (MP 234.0 - 240.0)

## Union Pacific

## ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives			
Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives			
GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8	SD80MAC	13
3 TM c/o	6	1 Truck c/o	7
C44AC (CP)	12.1	SD9043	11.6
1 TM c/o	11	1 Truck c/o	7
2 TM c/o	8	(except models	
3 TM c/o	6	below)	
C60/44 (7300-7335)	12.1	SD9043 (CP)	12
1 TM c/o	11	1 Truck c/o	9
2 TM c/o	8	SD90AC	14.5
3 TM c/o	6	1 Truck c/o	9
CFFAC-CTE		EMD AC locomotives have a single inverter per truck; therefore, an entire truck may be cut out.	
C44AC-CTE			
When in a lead consist or in a remote consist operating in the Full Tractive Effort (FTE) mode	12.1		
When in a remote consist operating in the Controlled Tractive Effort (CTE) mode	11		
1 TM c/o	11		
2 TM c/o	8		
3 TM c/o	6		
C60AC	14.7		
1 TM c/o	14		
2 TM c/o	11		
3 TM c/o	8		
GE AC locomotives have one inverter per axle; therefore an individual traction motor may be cut out. The maximum number of axles that may be cut out on a GE AC locomotive is three (3).			
* * *			

If unable to determine the model of a locomotive or its EPA and EDBA, the following TCS inquiry will provide the information:

=UM I unit Number

Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ~~⌘~~ Rear End Only~~⌘~~ or ~~⌘~~ Rear Rider~~⌘~~ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ~~⌘~~ Rear Rider~~⌘~~ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

### ITEM 10. (CONTINUED)

#### 31.8.2 Helper Placement

The term ~~⌘~~ Helper~~⌘~~ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ~~⌘~~ Empty Bulk Commodity Unit Train~~⌘~~ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten

sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ~~Restricted Tonnage Limit~~ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

#### A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

##### Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

##### Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

##### Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated <del>Rear End Only</del> or <del>Rear Rider</del>;</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected. On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.</li> </ol>
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well</li> </ol>

or two consecutive empty platform/wells;

2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~the~~ other than a loaded or empty bulk commodity unit train~~the~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the calculated position to comply with these train makeup restrictions.

1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by  $\frac{1}{2}$  the EPA of the helper. This number is the tonnage to be placed behind the helper.

$$\frac{(\text{Tonnage of Trains})}{(\text{Total EPA of all consists})} \times (\frac{1}{2} \text{ EPA of Helper}) = (\text{Tonnage to be placed behind helper})$$

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
Helper Consist: 2 C44AC (24 EPA)  
 Total: 48 EPA

$$\frac{16445 \text{ tons}}{48} \times (12) = 4111 \text{ (Tonnage to be placed behind helper)}$$

2. Position Requirements for Cut-in Helper with Additional Helper on Rear  
 To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and  $\frac{1}{2}$  the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

$$\frac{(\text{Tonnage of Trains})}{(\text{Total EPA of all consists})} \times (\text{EPA of R e a r Helper} + \frac{1}{2} \text{EPA of Cut-in Helper}) = (\text{Tonnage to be placed behind helper})$$

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Middle Helper: 3 C44AC (24 EPA)  
Helper Consist: 1 C44AC (12 EPA)  
 Total: 72 EPA

$$\frac{16445 \text{ tons}}{72} \times (12+18) = 6852 \text{ (Tonnage to be placed behind helper)}$$

Site 22: UP Feather River Division (MP 234.0-240.0)

System special instructions for train make-up, helper placement and axle limitations apply.

## Site 23: UP Feather River Division (MP 253.0 - 282.0)

## Union Pacific

## ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives

Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives

GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8		
3 TM c/o	6		

		SD80MAC 1 Truck c/o	13 7
C44AC (CP) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 1 Truck c/o (except models below)	11.6 7
C60/44 (7300-7335) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 (CP) 1 Truck c/o SD90AC 1 Truck c/o	12 9 14.5 9
CFFAC-CTE		EMD AC locomotives have a single inverter per truck; therefore, an entire truck may be cut out.	
C44AC-CTE  When in a lead consist or in a remote consist operating in the Full Tractive Effort (FTE) mode  When in a remote consist operating in the Controlled Tractive Effort (CTE) mode  1 TM c/o 2 TM c/o 3 TM c/o	12.1     11   11 8 6		
C60AC 1 TM c/o 2 TM c/o 3 TM c/o	14.7 14 11 8		
GE AC locomotives have one inverter per axle; therefore an individual traction motor may be cut out. The maximum number of axles that may be cut out on a GE AC locomotive is three (3).			
* * *			

If unable to determine the model of a locomotive or its EPA and EDPA, the following TCS inquiry will provide the information:

=UM I unit Number

#### Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train

immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 & 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

##### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ⌘ Rear End Only⌘ or ⌘ Rear Rider⌘ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ⌘ Rear Rider⌘ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

## ITEM 10. (CONTINUED)

### 31.8.2 Helper Placement

The term ⌘ Helper⌘ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ⌘ Empty Bulk Commodity Unit Train⌘ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ⌘ Restricted Tonnage Limit⌘ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

# A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

## Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

## Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

## Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated ⌘ Rear End Only⌘ or ⌘ Rear Rider;⌘</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected.</li> </ol> <p>On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.</p>
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.</li> </ol>

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~the~~ other than a loaded or empty bulk commodity unit train~~table~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the calculated position to comply with these train makeup restrictions.

##### 1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by  $\frac{1}{2}$  the EPA of the helper. This number is the tonnage to be placed behind the helper.

$$\frac{\text{(Tonnage of Trains)}}{\text{(EPA of Helper)}} \times \left(\frac{1}{2} \text{ EPA of Helper}\right) = \text{(Tonnage to be placed behind helper)}$$

(Total EPA of all consists)

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Helper Consist: 2 C44AC (24 EPA)  
 Total:48 EPA

$\frac{16445 \text{ tons}}{48} \times (12) = 4111$  (Tonnage to be placed behind helper)

2. Position Requirements for Cut-in Helper with Additional Helper on Rear  
 To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and  $\frac{1}{2}$  the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

$$\frac{\text{(Tonnage of Trains)}}{\text{(Total EPA of all consists)}} \times (\text{EPA of R e a r Helper} + \frac{1}{2}\text{EPA of Cut-in Helper}) = \text{(Tonnage to be placed behind helper)}$$

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Middle Helper: 3 C44AC (24 EPA)  
 Helper Consist: 1 C44AC (12 EPA)  
 Total:72 EPA

$\frac{16445 \text{ tons}}{72} \times (12+18) = 6852$  (Tonnage to be placed behind helper)

Site 23: UP Feather River Division (MP 253.0-282.0)

System special instructions for train make-up, helper placement and axle limitations apply.

## Site 26: BNSF Bieber Subdivision (MP 15.0 ✕ 25.0)

## Union Pacific

## ITEM 4. LOCOMOTIVE INFORMATION

To determine Equivalent Powered Axles (EPA) and Equivalent Dynamic Brake Axles (EDBA) for a locomotive consist, use the EPA and EDBA numbers indicated on the TCS consist. The following table is to be used only when a TCS consist is not available or when a locomotive consist is changed.

Note: When adding values of multiple locomotives, drop the final decimal value after the addition. An Equivalent Axle is a locomotive's tractive effort or braking effort compared to one standard axle which has 10,000 lbs. tractive effort or 10,000 lbs. braking effort.

As used in these tables, the following abbreviations apply:

CTE = Controlled Tractive Effort (limits locomotive to maximum of 110,000 lbs. tractive effort).

PA = Powered Axles.

EPA = Equivalent Powered Axles.

EDBA = Equivalent Dynamic Brake Axles.

FTE = Full Tractive Effort.

TM c/o = Traction motor(s) cut out

Truck c/o = Truck cut out

DC Traction Motor Locomotives			
Model	EPA	Model	EPA
B23-7	4.5	GP40	4.5
B30-7	5	GP40-2	5
B36-7	5	GP40X/GP50	6.5
B39-8	7.8	GP60	8
B40-8	7.8	SD38-2	5.4
C30-7/C36M	8	SD40-2	7.1
C36-7	9.4	SD45	7
C40-8	10.1	SD50	9.2
C41-8	10.1	SD60	9.9
C44-9	11.5	SD70	10.4
SW1500	3.7	SD75	10.3
MP15	4	DDA40X	9.6
GP9	4	E9	3.5
GP15-1	3.9	SL1 (Slug)	4
GP38	4.5	S4B (Slug)	4
GP38-2	4.5	S3-2B (Slug)	4
GP39-2	4.5	S6-1 (Slug)	5

\* \* \*

AC Traction Motor Locomotives			
GE Model	EPA	EMD Model	EPA
C44AC & C60/44	12.1	SD70MAC	10.4
1 TM c/o	11	1 Truck c/o	6
2 TM c/o	8		
3 TM c/o	6		

		SD80MAC 1 Truck c/o	13 7
C44AC (CP) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 1 Truck c/o (except models below)	11.6 7
C60/44 (7300-7335) 1 TM c/o 2 TM c/o 3 TM c/o	12.1 11 8 6	SD9043 (CP) 1 Truck c/o SD90AC 1 Truck c/o	12 9 14.5 9
CFFAC-CTE		EMD AC locomotives have a single inverter per truck; therefore, an entire truck may be cut out.	
C44AC-CTE  When in a lead consist or in a remote consist operating in the Full Tractive Effort (FTE) mode  When in a remote consist operating in the Controlled Tractive Effort (CTE) mode  1 TM c/o 2 TM c/o 3 TM c/o	12.1    11   11 8 6		
C60AC 1 TM c/o 2 TM c/o 3 TM c/o	14.7 14 11 8		
GE AC locomotives have one inverter per axle; therefore an individual traction motor may be cut out. The maximum number of axles that may be cut out on a GE AC locomotive is three (3).			
* * *			

If unable to determine the model of a locomotive or its EPA and EDPA, the following TCS inquiry will provide the information:

=UM I unit Number

#### Item 4-A Locomotive Instructions

Limit freight trains to eight locomotives on the lead consist, not exceeding 50 axles of power. When 50 axles of power is exceeded, isolate the excess trailing locomotives and notify the train dispatcher. However, operate double stack trains with up to 58 axles of power on the lead consist. The maximum of eight locomotives includes units that are working, isolated, dead-in-consist, or dead-in-train

immediately behind the locomotive consist. Train management may authorize a higher number of locomotives on freight trains but must not exceed power axles limitations above.

The eight locomotive limit does not apply to power transfers, with or without cabooses. Limit power transfers to a maximum of 25 locomotives unless train management authorizes you otherwise.

Do not move or switch more than eight coupled locomotives within locomotive servicing facilities. This includes movements between service tracks and train yards.

#### ITEM 5-A. TRAIN MAKE-UP REQUIREMENTS:

Trains that do not meet train make-up requirements may be moved as received from another railroad only to the first point where the train is scheduled to be switched.

##### Intermodal Equipment

Two-axle Front Runner cars (TTOX), three platform solid drawbar cars (in series FEC 60000-60199), four platform Four Runner cars (TTFX), and five platform solid drawbar cars (in Series CN 677000 to 677139) must be entrained as follows:

In a solid intermodal train, they must be entrained within the rear 2500 tons of train.

In other than solid intermodal trains, they must be entrained as the rear cars in the train.

When a train's total trailing tonnage exceeds 4500 tons, place cars listed below no closer than the eleventh car/platform behind the road engine:

Empty conventional type intermodal car or non-intermodal flat car that is 85 feet or longer,

and

Articulated multiplatform cars having one or more empty platform/wells.

When moving single trailers on TOFC flat cars equipped with only two hitches, they must not be loaded on the center hitch.

##### Long Car/Short Car

Do not couple freight cars 85 feet or longer to any car 39 feet or shorter.

However, this does not apply:

To freight cars 85 feet or longer when coupled to a caboose, if the caboose is the last car in the train,

or

To a locomotive crane 39 feet or shorter when coupled to a boom idler car 85 feet or longer.

Note: For the purposes of this restriction, each unit of an articulated car is to be considered one car.

##### Blocks of Empty/Loaded Cars

When a train's total trailing tonnage exceeds 4500 tons, do not place blocks of 20 or more continuous empty platforms and/or cars anywhere ahead of 20 or more continuous loaded platforms and/or cars.

#### A. Rear or Cut-in Requirement for Helper

Use the following applicable table to determine whether a helper is placed on rear of train or at cut-in position on train.

##### Loaded Bulk Commodity Unit Train

Helper EPA	Placement Required
28 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
29 to 55	Must be cut-in as outlined in Part B below.

##### Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
16 or less	May be placed on rear or cut-in as outlined in Part B below. When placed on rear, it must be placed ahead of any caboose.
17 to 32	Must be cut-in as outlined in Part B below

##### Other than a Loaded or Empty Bulk Commodity Unit Train

Helper EPA	Placement Requirements
Any Helper	Must be placed ahead of: <ol style="list-style-type: none"> <li>1. Rail pick-up cars RGAX 4694-4696;</li> <li>2. Two-axle scale test cars;</li> <li>3. Cars designated ☒ Rear End Only☒ or ☒ Rear Rider;☒</li> <li>4. Occupied caboose;</li> <li>5. Single platform two-axle car in series TTOX;</li> <li>6. Solid drawbar-connected four platform car in series TTFX;</li> <li>7. Solid drawbar-connected three platform car in series FEC 60000-601999;</li> <li>8. Solid drawbar-connected five platform car in series CN 677000-677139;</li> <li>9. Gondola car in series AMGX that is solid-drawbar connected.</li> </ol> On the TCS train consist, AMGX cars with symbol 2-P indicates 2 platforms that are solid-drawbar connected.
7 or less	Placed on rear.
8 to 16	Placed on rear. The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper. The conventional cars and/or platform/wells must not be: <ol style="list-style-type: none"> <li>1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;</li> <li>2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons.</li> </ol>

### Rear End Only Cars

Entrain equipment tagged, stenciled, billed or shown on the train consist as ~~⌘~~ Rear End Only~~⌘~~ or ~~⌘~~ Rear Rider~~⌘~~ in the rear five cars of the train. Solid blocks of this equipment may extend up to 20 cars from the rear of the train if the trailing car of the block is in the rear five cars.

Gondola cars in series AMGX that are solid-drawbar connected must be placed as a ~~⌘~~ Rear Rider~~⌘~~ explained above, behind helper locomotives. On the TCS train consist, AMGX cars with symbol 2-P indicates two platforms that are solid-drawbar connected.

Passenger cars with initials MTDX must be placed in a train beginning immediately ahead of the rear car of the train.

### Cabooses

Move cabooses, including unoccupied cabooses, only at the rear of the train. However, this requirement does not apply when handling less than 20 cars and not exceeding 2500 tons. Train management may authorize you otherwise.

West of North Platte, Denver and El Paso:

The following train makeup restrictions apply:

Type of Car	Maximum Trailing Tonnage Behind Car	
	4500 Tons	5500 Tons
Multiplatform spine car	Has one or more empty platforms	Has all platforms loaded
Double stack car	Has one or more empty wells	
Conventional type intermodal flat car or non-intermodal flat car that is 85 feet or longer	Empty car	
Two TOFC/COFC solid drawbar connected car in series TTEX 353000-354149, 3537000-357015, 161000- 161199, RTTX 165200-165507	Has one or more empty platforms	

## ITEM 10. (CONTINUED)

### 31.8.2 Helper Placement

The term ~~⌘~~ Helper~~⌘~~ as used in this rule refers to either a manned helper locomotive consist or a Distributed Power locomotive consist not coupled to the lead/controlling consist.

The term ~~⌘~~ Empty Bulk Commodity Unit Train~~⌘~~ as used in this rule applies to a train made up entirely of empty cars used to transport coal, grain, ore, potash, molten sulfur, soda ash, phosphate rock, oil, taconite or other bulk commodities.

The term ~~⌘~~ Restricted Tonnage Limit~~⌘~~ refers to the total weight of the cars immediately ahead of the helper. Certain cars are restricted from being within that tonnage limit, typically the 250 tons immediately ahead of the helper.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

17 to 23

Placed on rear.

The following makeup restrictions apply to cars and/or the platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

When train makeup within the 250 tons immediately ahead of the helper does not meet the above requirements, helper may be cut-in to train to a location that does permit complying with makeup restrictions.

When cut-in to train under this condition, Part B below will not apply.

24 to 36

Must be cut-in as outlined in Part B below.

The following makeup restrictions apply to the conventional cars and/or platform/wells of multi-platform cars entrained within the 250 restricted tonnage limit immediately ahead of the helper.

The conventional cars and/or platform/wells must not be:

1. Multi-platform car having either an empty end platform/well or two consecutive empty platform/wells;
2. Car 45 feet or less in length coupled to a car 73 feet or longer in length (except for a multiplatform spine car or a multiplatform doublestack car) weighing less than 60 tons;
3. Car weighing less than 45 tons.

If rear helper or cut-in helper exceeds EPA requirements in above tables, sufficient locomotives must be isolated or, on AC locomotives only, traction motors or trucks may be cut out to meet requirements to prevent exceeding EPA limits in tables.

#### B. Tonnage Placement for Cut-in Helper.

When the following tonnage placement requirement conflicts with train makeup restrictions in the ~~the~~ other than a loaded or empty bulk commodity unit train~~the~~ table, a cut-in helper may be moved up to five cars or platform/wells ahead or behind the calculated position to comply with these train makeup restrictions.

#### 1. Position Requirements for One Cut-in Helper.

To determine the placement of one helper: divide the total tonnage of the train by the EPA of both the helper and the lead consist and then multiply that number by  $\frac{1}{2}$  the EPA of the helper. This number is the tonnage to be placed behind the helper.

          (Tonnage of Trains)           x ( $\frac{1}{2}$  EPA of Helper) = (Tonnage to be placed behind helper)

(Total EPA of all consists)

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Helper Consist: 2 C44AC (24 EPA)  
 Total: 48 EPA

$\frac{16445 \text{ tons}}{48} \times (12) = 4111$  (Tonnage to be placed behind helper)

2. Position Requirements for Cut-in Helper with Additional Helper on Rear  
 To determine the placement of a cut-in helper when the train also has a helper on the rear, divide the tonnage of the train by the combined total of the EPA of the rear helper, the cut-in helper and the lead consist. Multiply this number by the combined total of the EPA of the rear helper and  $\frac{1}{2}$  the EPA of the cut-in helper. This number is the amount of tonnage to be placed behind the cut-in helper.

$$\frac{(\text{Tonnage of Trains})}{(\text{Total EPA of all consists})} \times (\text{EPA of R e a r Helper} + \frac{1}{2} \text{EPA of Cut-in Helper}) = (\text{Tonnage to be placed behind helper})$$

Exaple: 115-0-16445 tons  
 Lead Consist: 2 C44AC (24 EPA)  
 Middle Helper: 3 C44AC (24 EPA)  
 Helper Consist: 1 C44AC (12 EPA)  
 Total: 72 EPA

$\frac{16445 \text{ tons}}{72} \times (12+18) = 6852$  (Tonnage to be placed behind helper)

## BNSF

## Rules Applicable to BNSF RR Operations on CPUC Sites

## Locomotive Restrictions ☒

ABTH 102.11

## Powered Axles Limitation

Locomotive consists must not have in excess of 42 equivalent powered axles. Excess axles of power must be isolated. Unless otherwise restricted, trains made up entirely of intermodal equipment may operate with a maximum of 48 equivalent powered axles.

## Helper Locomotive Operation ☒

Located in ABTH 102.12.6

## Powered Axle Limitations

Unless individual subdivisions special instructions specify otherwise, the following rated powered axle (RPA) limitations apply to each DP/helper consists:

(Use Locomotive Data Table to determine powered axle ratings)

- All trains (excluding unit bulk commodity trains) - 16 RPA or less on rear and 24 RPA, cut in.
- Solid, empty unit bulk commodity trains - 12 RPA or less on rear or cut in.
- Solid, loaded unit bulk commodity trains - 24 RPA or less on rear or cut in. (bulk commodity trains = coal, grain, potash, taconite, molten sulphur, etc.)

## DP/Helper Train Make Up Restrictions

1. All DP/helpers locomotives must be placed ahead of:
    - a. All TTOX (single unit 2 axle equipment) and TTFX (4-unit solid drawbar connected 2-axle per unit equipment), regardless of weight.
    - b. 2-axle scale test cars.
    - c. Cars designated ☒ Rear end only☒.
    - d. Occupied caboose.
  2. No train make up restrictions apply except for rear end only cars listed in Item 1 above when DP/helper locomotives consist is rated at 8 powered axles or less.
  3. Except for empty unit bulk commodity trains, which may be operated with 12 rated powered axles, when DP/helper locomotive consist powered axle rating is between 9 and 24 powered axles, the following cars may not be placed:  
 Within 10 cars/platforms AHEAD a DP/helper consist if on rear of train.  
 or Within 5 cars/platforms AHEAD a cut in DP/helper consist.
    - a. A conventional car (non multi-platform) weighing less than 45 tons.
    - b. A multi-platform car having a single empty platform.
    - c. A car 45 feet or less in length coupled to a car 80 feet or longer in length.
- Note: Does not apply to multi-platform cars except those with individual platforms

exceeding 80 ft. in length. Examples: Twin flat cars and AutoMax cars.

d. Any 80 foot or longer flat car with a single trailer/container, regardless of weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars, TTEX and RTTX series) with a single trailer/container on either platform.

#### Powered Axle Limitations

In addition, above cars must not be within 5 cars/platforms BEHIND a cut in DP/helper consist if trailing tonnage behind helpers exceeds the following tonnages when operating over specified locations.

and DP/helper consist must not vary by more than 16 rated powered axles.

#### Caboose Placement ☒

System Special Instructions Page 9 Item 3 (G)

#### 3 (G) . Caboose Placement

All cabooses other than the working caboose moving in trains for any reason, are to be handled on rear of train or just ahead of working caboose, except:

- A. Trains operating with helpers on the rear end must have cabooses other than the working caboose placed behind helpers.
- B. Trains or yard movements limited to maximum speed of 10 MPH may operate with caboose placed anywhere in train.
- C. Cars with defective couplers may be transported to repair facilities behind caboose.

#### BNSF RR Current Train Make-Up Instructions

##### Trailing Tonnage Restrictions:

1. The following cars must not be ahead of more than 2,500 trailing tons:
  - All loaded or empty 2-axle cars (series TTOX and TTFX)
2. The following cars must not be ahead of more than 3,000 trailing tons (long car/short car)
  - Any car 80 feet or longer coupled to any car 45 feet or shorter.

Exception: Next to locomotive crane 45 feet or less if coupled to boom car 80 feet or longer.

Note: Item 2 does not apply to multi-platform cars except those with individual platforms exceeding 80 feet.

(Examples: Twin flat cars and Automax cars)

3. The following cars must not be ahead of more than 5,500 trailing tons

- Multi-platform spine cars, regardless of how loaded.

Total Train Tonnage Restrictions:

4. Trains greater than 5,500 total tons ❧ The following cars must not be within the first 10 cars/platforms:

- Any conventional car (non-multi-platform) weighing less than 45 tons.
- Any 80 feet or longer flat car with a single trailer/container, regardless of car weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars TTEX & RTTX series) with a single trailer/container on either segment/platform.

- Multi-platform cars with any empty platforms. Additional subdivision restrictions (excludes solid empty bulk commodity trains):

On Glorieta (MP 775.0-MP 842.0) and Raton (MP 639.0-MP 660.0) Subdivisions the following additional restrictions apply:

Trains greater than 2,500 tons and less than 3,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 3,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

On Cajon (Main 2, MP 56.6-MP 62.8), Gateway (MP 178.0-188.0), Mojave (MP 331.3-MP 381.3), Scenic (MP 1694.5-MP 1731.3) and Stampede (MP 41.0-MP 58.5) the following additional restrictions apply:

Trains greater than 3,500 tons and less than 4,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 4,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

Note: Unless otherwise authorized, all trains destined Cajon or Mojave Subdivisions will be made up in compliance with above guidelines for Cajon Subdivision (Main 2, MP 56.6-MP 62.8) and Mojave Subdivision MP 331.3-MP 381.3).

5. Trains greater than 7,000 tons ❧

- Rear 1/4 of the train must not weigh more than 1/3 of the total weight.

Exception: This does not apply to:

- trains made up entirely of cars weighing a minimum of 45 tons each.
- solid loaded or solid empty unit bulk commodity trains.
- trains made up entirely of intermodal equipment.

NOTE: If a train is determined to be out of compliance with these train make-up rules and maximum authorized speed exceeds 45 MPH, speed must immediately be reduced to 45 MPH and train dispatcher notified.

Train must not exceed a maximum speed of 45 MPH until it reaches the location specified by the train dispatcher to correct the condition.



## Site 28: BNSF Cajon (MP 53.0 - 68.0)

## BNSF

## Rules Applicable to BNSF RR Operations on CPUC Sites

## Locomotive Restrictions ☒

## ABTH 102.11

## Powered Axles Limitation

Locomotive consists must not have in excess of 42 equivalent powered axles. Excess axles of power must be isolated. Unless otherwise restricted, trains made up entirely of intermodal equipment may operate with a maximum of 48 equivalent powered axles.

## Helper Locomotive Operation ☒

## Located in ABTH 102.12.6

## Powered Axle Limitations

Unless individual subdivisions special instructions specify otherwise, the following rated powered axle (RPA) limitations apply to each DP/helper consists:

(Use Locomotive Data Table to determine powered axle ratings)

- All trains (excluding unit bulk commodity trains) - 16 RPA or less on rear and 24 RPA, cut in.
- Solid, empty unit bulk commodity trains - 12 RPA or less on rear or cut in.
- Solid, loaded unit bulk commodity trains - 24 RPA or less on rear or cut in. (bulk commodity trains = coal, grain, potash, taconite, molten sulphur, etc.)

## DP/Helper Train Make Up Restrictions

1. All DP/helpers locomotives must be placed ahead of:
  - a. All TTOX (single unit 2 axle equipment) and TTFX (4-unit solid drawbar connected 2-axle per unit equipment), regardless of weight.
  - b. 2-axle scale test cars.
  - c. Cars designated ☒ Rear end only☒ .
  - d. Occupied caboose.
2. No train make up restrictions apply except for rear end only cars listed in Item 1 above when DP/helper locomotives consist is rated at 8 powered axles or less.
3. Except for empty unit bulk commodity trains, which may be operated with 12 rated powered axles, when DP/helper locomotive consist powered axle rating is between 9 and 24 powered axles, the following cars may not be placed:
 

Within 10 cars/platforms AHEAD a DP/helper consist if on rear of train.

or Within 5 cars/platforms AHEAD a cut in DP/helper consist.

  - a. A conventional car (non multi-platform) weighing less than 45 tons.
  - b. A multi-platform car having a single empty platform.
  - c. A car 45 feet or less in length coupled to a car 80 feet or longer in

length.

Note: Does not apply to multi-platform cars except those with individual platforms exceeding 80 ft. in length. Examples: Twin flat cars and AutoMax cars.

d. Any 80 foot or longer flat car with a single trailer/container, regardless of weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars, TTEX and RTTX series) with a single trailer/container on either platform.

#### Powered Axle Limitations

In addition, above cars must not be within 5 cars/platforms BEHIND a cut in DP/helper consist if trailing tonnage behind helpers exceeds the following tonnages when operating over specified locations.

and DP/helper consist must not vary by more than 16 rated powered axles.

#### Caboose Placement ☒

System Special Instructions Page 9 Item 3(G)

#### 3(G). Caboose Placement

All cabooses other than the working caboose moving in trains for any reason, are to be handled on rear of train or just ahead of working caboose, except:

- A. Trains operating with helpers on the rear end must have cabooses other than the working caboose placed behind helpers.
- B. Trains or yard movements limited to maximum speed of 10 MPH may operate with caboose placed anywhere in train.
- C. Cars with defective couplers may be transported to repair facilities behind caboose.

#### BNSF RR Current Train Make-Up Instructions

##### Trailing Tonnage Restrictions:

1. The following cars must not be ahead of more than 2,500 trailing tons:
  - All loaded or empty 2-axle cars (series TTOX and TTFX)
2. The following cars must not be ahead of more than 3,000 trailing tons (long car/short car)
  - Any car 80 feet or longer coupled to any car 45 feet or shorter.

Exception: Next to locomotive crane 45 feet or less if coupled to boom car 80 feet or longer.

Note: Item 2 does not apply to multi-platform cars except those with individual platforms exceeding 80 feet.

(Examples: Twin flat cars and Automax cars)

3. The following cars must not be ahead of more than 5,500 trailing tons

- Multi-platform spine cars, regardless of how loaded.

Total Train Tonnage Restrictions:

4. Trains greater than 5,500 total tons ~~✖~~ The following cars must not be within the first 10 cars/platforms:

- Any conventional car (non-multi-platform) weighing less than 45 tons.
- Any 80 feet or longer flat car with a single trailer/container, regardless of car weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars TTEX & RTTX series) with a single trailer/container on either segment/platform.

- Multi-platform cars with any empty platforms. Additional subdivision restrictions (excludes solid empty bulk commodity trains):

On Glorieta (MP 775.0-MP 842.0) and Raton (MP 639.0-MP 660.0) Subdivisions the following additional restrictions apply:

Trains greater than 2,500 tons and less than 3,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 3,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

On Cajon (Main 2, MP 56.6-MP 62.8), Gateway (MP 178.0-188.0), Mojave (MP 331.3-MP 381.3), Scenic (MP 1694.5-MP 1731.3) and Stampede (MP 41.0-MP 58.5) the following additional restrictions apply:

Trains greater than 3,500 tons and less than 4,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 4,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

Note: Unless otherwise authorized, all trains destined Cajon or Mojave Subdivisions will be made up in compliance with above guidelines for Cajon Subdivision (Main 2, MP 56.6-MP 62.8) and Mojave Subdivision MP 331.3-MP 381.3).

5. Trains greater than 7,000 tons ~~✖~~

- Rear 1/4 of the train must not weigh more than 1/3 of the total weight.

Exception: This does not apply to:

- trains made up entirely of cars weighing a minimum of 45 tons each.
- solid loaded or solid empty unit bulk commodity trains.
- trains made up entirely of intermodal equipment.

NOTE: If a train is determined to be out of compliance with these train make-up rules and maximum authorized speed exceeds 45 MPH, speed must immediately be reduced to 45 MPH and train dispatcher notified.

Train must not exceed a maximum speed of 45 MPH until it reaches the location specified by the train dispatcher to correct the condition.



## Site 29: BNSF Cajon (MP 80.5 - 81.5)

**BNSF**

## Rules Applicable to BNSF RR Operations on CPUC Sites

## Locomotive Restrictions ☒

ABTH 102.11

## Powered Axles Limitation

Locomotive consists must not have in excess of 42 equivalent powered axles. Excess axles of power must be isolated. Unless otherwise restricted, trains made up entirely of intermodal equipment may operate with a maximum of 48 equivalent powered axles.

## Helper Locomotive Operation ☒

Located in ABTH 102.12.6

## Powered Axle Limitations

Unless individual subdivisions special instructions specify otherwise, the following rated powered axle (RPA) limitations apply to each DP/helper consists:

(Use Locomotive Data Table to determine powered axle ratings)

- All trains (excluding unit bulk commodity trains) - 16 RPA or less on rear and 24 RPA, cut in.
- Solid, empty unit bulk commodity trains - 12 RPA or less on rear or cut in.
- Solid, loaded unit bulk commodity trains - 24 RPA or less on rear or cut in. (bulk commodity trains = coal, grain, potash, taconite, molten sulphur, etc.)

## DP/Helper Train Make Up Restrictions

1. All DP/helpers locomotives must be placed ahead of:

- a. All TTOX (single unit 2 axle equipment) and TTFX (4-unit solid drawbar connected 2-axle per unit equipment), regardless of weight.
- b. 2-axle scale test cars.
- c. Cars designated ☒ Rear end only☒ .
- d. Occupied caboose.

2. No train make up restrictions apply except for rear end only cars listed in Item 1 above when DP/helper locomotives consist is rated at 8 powered axles or less.

3. Except for empty unit bulk commodity trains, which may be operated with 12 rated powered axles, when DP/helper locomotive consist powered axle rating is between 9 and 24 powered axles, the following cars may not be placed:

Within 10 cars/platforms AHEAD a DP/helper consist if on rear of train.  
or Within 5 cars/platforms AHEAD a cut in DP/helper consist.

- a. A conventional car (non multi-platform) weighing less than 45 tons.
- b. A multi-platform car having a single empty platform.

c. A car 45 feet or less in length coupled to a car 80 feet or longer in length.

Note: Does not apply to multi-platform cars except those with individual platforms exceeding 80 ft. in length. Examples: Twin flat cars and AutoMax cars.

d. Any 80 foot or longer flat car with a single trailer/container, regardless of weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars, TTEX and RTTX series) with a single trailer/container on either platform.

#### Powered Axle Limitations

In addition, above cars must not be within 5 cars/platforms BEHIND a cut in DP/helper consist if trailing tonnage behind helpers exceeds the following tonnages when operating over specified locations.

and DP/helper consist must not vary by more than 16 rated powered axles.

#### Caboose Placement ☒

#### System Special Instructions Page 9 Item 3 (G)

#### 3 (G). Caboose Placement

All cabooses other than the working caboose moving in trains for any reason, are to be handled on rear of train or just ahead of working caboose, except:

A. Trains operating with helpers on the rear end must have cabooses other than the working caboose placed behind helpers.

B. Trains or yard movements limited to maximum speed of 10 MPH may operate with caboose placed anywhere in train.

C. Cars with defective couplers may be transported to repair facilities behind caboose.

#### BNSF RR Current Train Make-Up Instructions

#### Trailing Tonnage Restrictions:

1. The following cars must not be ahead of more than 2,500 trailing tons:

- All loaded or empty 2-axle cars (series TTOX and TTFX)

2. The following cars must not be ahead of more than 3,000 trailing tons (long car/short car)

- Any car 80 feet or longer coupled to any car 45 feet or shorter.

Exception: Next to locomotive crane 45 feet or less if coupled to boom car 80 feet or longer.

Note: Item 2 does not apply to multi-platform cars except those with individual platforms exceeding 80 feet.

(Examples: Twin flat cars and Automax cars)

3. The following cars must not be ahead of more than 5,500 trailing tons

- Multi-platform spine cars, regardless of how loaded.

Total Train Tonnage Restrictions:

4. Trains greater than 5,500 total tons ~~✖~~The following cars must not be within the first 10 cars/platforms:

- Any conventional car (non-multi-platform) weighing less than 45 tons.
- Any 80 feet or longer flat car with a single trailer/container, regardless of car weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars TTEX & RTTX series) with a single trailer/container on either segment/platform.

- Multi-platform cars with any empty platforms. Additional subdivision restrictions (excludes solid empty bulk commodity trains):

On Glorieta (MP 775.0-MP 842.0) and Raton (MP 639.0-MP 660.0) Subdivisions the following additional restrictions apply:

Trains greater than 2,500 tons and less than 3,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 3,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

On Cajon (Main 2, MP 56.6-MP 62.8), Gateway (MP 178.0-188.0), Mojave (MP 331.3-MP 381.3), Scenic (MP 1694.5-MP 1731.3) and Stampede (MP 41.0-MP 58.5) the following additional restrictions apply:

Trains greater than 3,500 tons and less than 4,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 4,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

Note: Unless otherwise authorized, all trains destined Cajon or Mojave Subdivisions will be made up in compliance with above guidelines for Cajon Subdivision (Main 2, MP 56.6-MP 62.8) and Mojave Subdivision MP 331.3-MP 381.3).

5. Trains greater than 7,000 tons ~~✖~~

- Rear 1/4 of the train must not weigh more than 1/3 of the total weight.

Exception: This does not apply to:

- trains made up entirely of cars weighing a minimum of 45 tons each.
- solid loaded or solid empty unit bulk commodity trains.
- trains made up entirely of intermodal equipment.

NOTE: If a train is determined to be out of compliance with these train make-up rules and maximum authorized speed exceeds 45 MPH, speed must immediately be reduced to 45 MPH and train dispatcher notified.

Train must not exceed a maximum speed of 45 MPH until it reaches the location specified by the train dispatcher to correct the condition.



## Site 31: NCTA San Diego (MP 249.0 - 253.0)

**BNSF**

## Rules Applicable to BNSF RR Operations on CPUC Sites

## Locomotive Restrictions ☒

ABTH 102.11

## Powered Axles Limitation

Locomotive consists must not have in excess of 42 equivalent powered axles. Excess axles of power must be isolated. Unless otherwise restricted, trains made up entirely of intermodal equipment may operate with a maximum of 48 equivalent powered axles.

## Helper Locomotive Operation ☒

Located in ABTH 102.12.6

## Powered Axle Limitations

Unless individual subdivisions special instructions specify otherwise, the following rated powered axle (RPA) limitations apply to each DP/helper consists:

(Use Locomotive Data Table to determine powered axle ratings)

- All trains (excluding unit bulk commodity trains) - 16 RPA or less on rear and 24 RPA, cut in.
- Solid, empty unit bulk commodity trains - 12 RPA or less on rear or cut in.
- Solid, loaded unit bulk commodity trains - 24 RPA or less on rear or cut in. (bulk commodity trains = coal, grain, potash, taconite, molten sulphur, etc.)

## DP/Helper Train Make Up Restrictions

1. All DP/helpers locomotives must be placed ahead of:
  - a. All TTOX (single unit 2 axle equipment) and TTFX (4-unit solid drawbar connected 2-axle per unit equipment), regardless of weight.
  - b. 2-axle scale test cars.
  - c. Cars designated ☒ Rear end only☒.
  - d. Occupied caboose.
2. No train make up restrictions apply except for rear end only cars listed in Item 1 above when DP/helper locomotives consist is rated at 8 powered axles or less.
3. Except for empty unit bulk commodity trains, which may be operated with 12 rated powered axles, when DP/helper locomotive consist powered axle rating is between 9 and 24 powered axles, the following cars may not be placed:
 

Within 10 cars/platforms AHEAD a DP/helper consist if on rear of train.

or Within 5 cars/platforms AHEAD a cut in DP/helper consist.

  - a. A conventional car (non multi-platform) weighing less than 45 tons.
  - b. A multi-platform car having a single empty platform.
  - c. A car 45 feet or less in length coupled to a car 80 feet or longer in

length.

Note: Does not apply to multi-platform cars except those with individual platforms exceeding 80 ft. in length. Examples: Twin flat cars and AutoMax cars.

d. Any 80 foot or longer flat car with a single trailer/container, regardless of weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars, TTEX and RTTX series) with a single trailer/container on either platform.

#### Powered Axle Limitations

In addition, above cars must not be within 5 cars/platforms BEHIND a cut in DP/helper consist if trailing tonnage behind helpers exceeds the following tonnages when operating over specified locations.

and DP/helper consist must not vary by more than 16 rated powered axles.

#### Caboose Placement ☒

System Special Instructions Page 9 Item 3(G)

#### 3(G). Caboose Placement

All cabooses other than the working caboose moving in trains for any reason, are to be handled on rear of train or just ahead of working caboose, except:

- A. Trains operating with helpers on the rear end must have cabooses other than the working caboose placed behind helpers.
- B. Trains or yard movements limited to maximum speed of 10 MPH may operate with caboose placed anywhere in train.
- C. Cars with defective couplers may be transported to repair facilities behind caboose.

#### NCTA San Diego (San Diego Subdivision Special Instruction)

Between CP Pines and CP Cumbres, if no helper or Distributive Power Units is available, eastward freight trains must double the hill if:

1. Trailing tonnage exceeds 3500 tons and contains any empty cars in the head 10 cars. TOFC-COFC cars containing empty vans or containers, or having any empty stanchions or platforms must be considered as an empty car. These restrictions also apply to subsequent cuts; or,
2. Trains exceed 4800 tons, except unit trains
3. Unit trains, when train exceeds 5400 tons.

In all cases, when the lead locomotive reached MP 251.0 the engineer must reduce at least two throttle positions and must not increase throttle until rear of train has passed MP 253.0.

Metro Link timetable addressing train makeup for freight train as follows:

Except as otherwise provided in this timetable, freight carriers operating on the Metro Link or San Diego Northern Railway territory will be governed by the instruction in their respective timetables concerning the following matters:

SPEED RESTRICTIONS ☒ Locomotive  
 SPEED RESTRICTIONS ☒ Cars  
 SPEED RESTRICTIONS ☒ Train  
 TRAIN MAKEUP INSTRUCTIONS  
 HAZARDOUS MATERIAL INSTRUCTIONS

#### BNSF RR Current Train Make-Up Instructions

##### Trailing Tonnage Restrictions:

1. The following cars must not be ahead of more than 2,500 trailing tons:
  - All loaded or empty 2-axle cars (series TTOX and TTFX)
2. The following cars must not be ahead of more than 3,000 trailing tons (long car/short car)
  - Any car 80 feet or longer coupled to any car 45 feet or shorter.

Exception: Next to locomotive crane 45 feet or less if coupled to boom car 80 feet or longer.

Note: Item 2 does not apply to multi-platform cars except those with individual platforms exceeding 80 feet.  
 (Examples: Twin flat cars and Automax cars)

3. The following cars must not be ahead of more than 5,500 trailing tons
  - Multi-platform spine cars, regardless of how loaded.

##### Total Train Tonnage Restrictions:

4. Trains greater than 5,500 total tons ☒ The following cars must not be within the first 10 cars/platforms:
  - Any conventional car (non-multi-platform) weighing less than 45 tons.
  - Any 80 feet or longer flat car with a single trailer/container, regardless of car weight.

Note: This includes twin flat cars (solid-drawbar connected flat cars TTEX & RTTX series) with a single trailer/container on either segment/platform.

- Multi-platform cars with any empty platforms. Additional subdivision restrictions (excludes solid empty bulk commodity trains):

On Glorieta (MP 775.0-MP 842.0) and Raton (MP 639.0-MP 660.0) Subdivisions the following additional restrictions apply:

Trains greater than 2,500 tons and less than 3,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 3,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

On Cajon (Main 2, MP 56.6-MP 62.8), Gateway (MP 178.0-188.0), Mojave (MP 331.3-MP 381.3), Scenic (MP 1694.5-MP 1731.3) and Stampede (MP 41.0-MP 58.5) the following additional restrictions apply:

Trains greater than 3,500 tons and less than 4,000 tons, the cars listed above must not be within the first 10 cars/platforms. Trains 4,000 tons or greater, the cars listed above must not be within the first 15 cars/platforms.

Note: Unless otherwise authorized, all trains destined Cajon or Mojave Subdivisions will be made up in compliance with above guidelines for Cajon Subdivision (Main 2, MP 56.6-MP 62.8) and Mojave Subdivision MP 331.3-MP 381.3).

5. Trains greater than 7,000 tons ☒

- Rear 1/4 of the train must not weigh more than 1/3 of the total weight.

Exception: This does not apply to:

- trains made up entirely of cars weighing a minimum of 45 tons each.
- solid loaded or solid empty unit bulk commodity trains.
- trains made up entirely of intermodal equipment.

NOTE: If a train is determined to be out of compliance with these train make-up rules and maximum authorized speed exceeds 45 MPH, speed must immediately be reduced to 45 MPH and train dispatcher notified.

Train must not exceed a maximum speed of 45 MPH until it reaches the location specified by the train dispatcher to correct the condition.

(END OF ATTACHMENT D)